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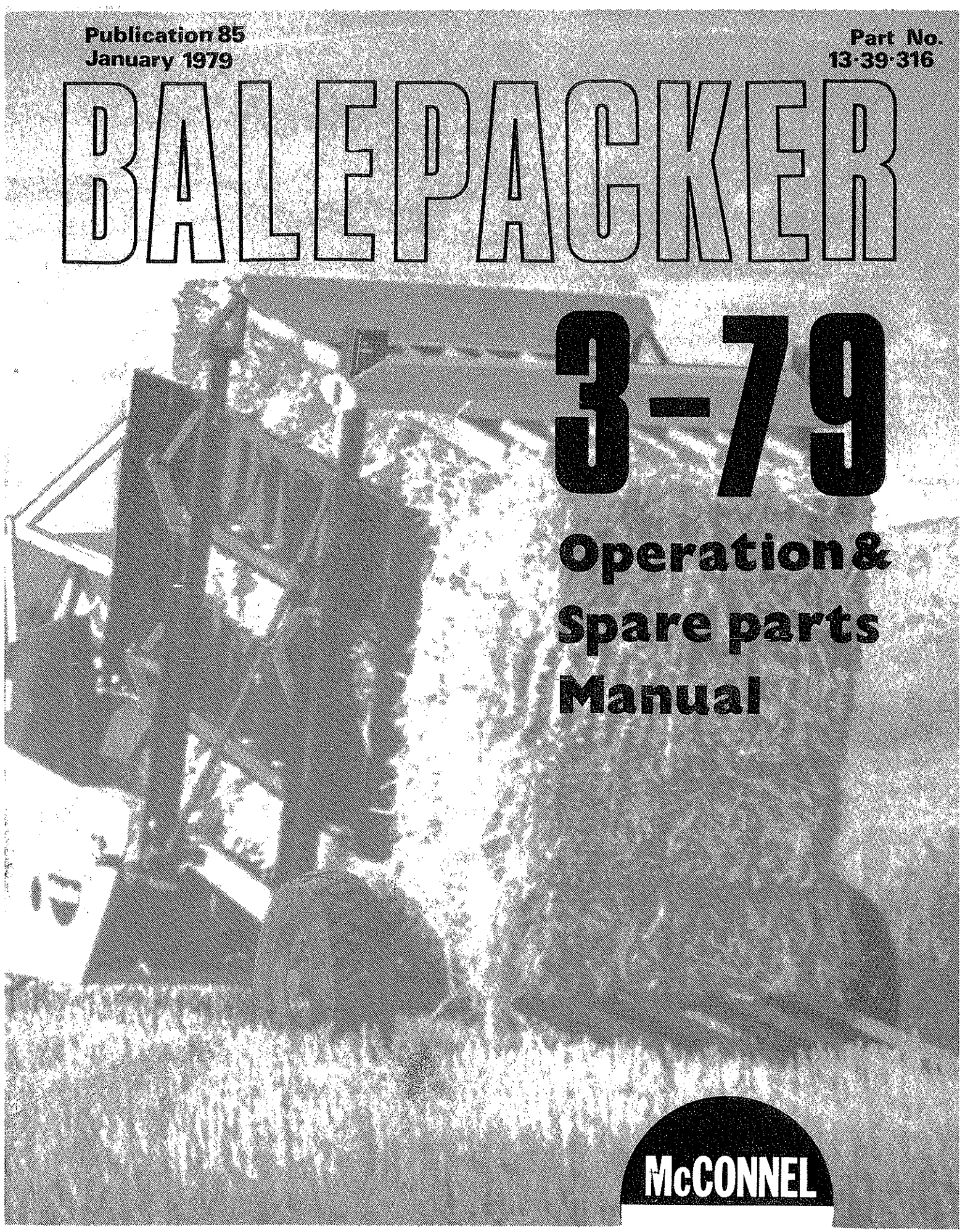
BALEPACKER

3-79

Operation & Spare parts Manual



McCONNEL

The dependable farm workers.

INTRODUCTION

Read this manual before fitting or operating the machine. Whenever any doubt exists contact your dealer or the McConnel Service Department for assistance.

DEFINITIONS

The following definitions apply throughout this manual:

> WARNING
>
> An operating procedure, technique etc., which can result in personal injury or loss of life if not observed carefully.

CAUTION: An operating procedure, technique etc., which can result in the damage of either machine or equipment if not observed carefully.

NOTE: An operating procedure, technique etc., which is considered essential to emphasise.

Left and Right Hand

This term is applicable to the machine when fitted to the tractor and viewed from the rear. This also applies to tractor references.

Record the serial number of your machine on this page and always quote this number when ordering spares. Whenever information concerning the machine is requested remember to also state the type of tractor to which it is fitted.

MACHINE SERIAL NUMBER		INSTALLATION DATE	DEALERS NAME	
			DEALERS TELEPHONE NUMBER	
MODEL DETAILS				

CONTENTS

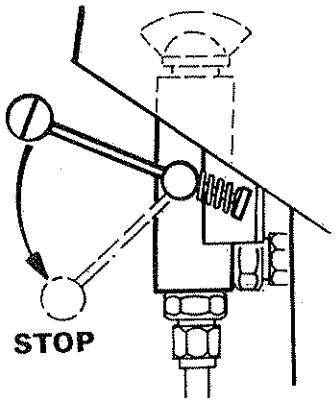
This machine is designed for one man operation.

WARNING

SAFETY PRECAUTIONS

NEVER ... Attempt to make any adjustments while the hydraulic supply is switched on at the machine.

... Climb onto or reach into the machine unless:-



The isc'ation valve lever is at 'STOP'.

The tractor engine is stopped.

... Operate the machine before ensuring that all personnel are well clear of the work area.

ALWAYS ... Keep all guards in place while working - they are for your protection.

... Before starting work check the drawbar attachment bolts on the Baler for security.

... Park machine on level ground before disconnecting from the baler.

... Block one of the rear wheels before removing Drawbar Pins allowing the machine to slew to the transport position.

... Use a tractor with sufficient power and weight when operating on sloping ground.

... Operate the machine whenever possible up and down rather than across a slope.

... Keep a sharp look out for children.

SECTION 2.

1. SELECTION AND PREPARATION OF TRACTOR

The fully laden weight of the Balepacker can be in excess of 3 tons, add the weight of the baler and take into account the probability of working on soft or sloping ground when deciding on the choice of a tractor.

The hydraulic system of the tractor must be in good condition with a minimum relief valve setting of 2200 psi and a minimum flow rate of 5 gpm. For an average operating speed of one bale every five seconds a flow of 7 gpm is required.

The Balepacker should not be powered by tractors that utilise part of their hydraulic delivery or return flow for essential services like power steering, brakes or gearbox lubrication unless cleared for such use by their dealer or by F.W. McConnel Service Department.

John Deere tractors which have a 'closed centre' hydraulic system can be used satisfactorily provided that the unloader valve on the Balepacker is screwed in completely. Consult Service Bulletin HY/02 for further information on the John Deere hydraulic system.

Ford tractors equipped with Dual Power can be used provided that a return by-pass valve is installed. This valve divides the return line oil to give a constant 1½gpm at transmission lubrication pressure, the remainder of the oil is returned to the tractor via the gearbox filler cap at a greatly reduced pressure. The return hose by-pass assembly, part no 80 02 297 is 'works' calibrated and supplied complete with tractor return connection adaptor and hoses.

On Ford 600 & 700 line tractors (with or without Dual Power) which are equipped with 'Q' cabs, no provision is made for a filler cap on the gear box housing. These tractors which are fitted with hydraulic cooler trans-mission pressure lubrication maintain a back pressure in the system up to a maximum of 45 psi. The return hose from the Balepacker must be connected into the lubrication system at the cooler valve manifold cap nut. Use McConnel return kit part no 80 02 284.
Alternatively, Fords can supply a return kit under their part no SF670 191 S1 and SF670 179 S1.
Consult Service Bulletin HY/04.

Recommended oil. The Balepacker has been designed to operate on a wide range of oils which are found in the hydraulic systems of modern tractors.

Oil change. To reduce the risk of contamination by dirt and condensation it is strongly advisable to change the oil in the hydraulic system of older model tractors and those that have done a great deal of work.

2. SELECTION AND PREPARATION OF BALER

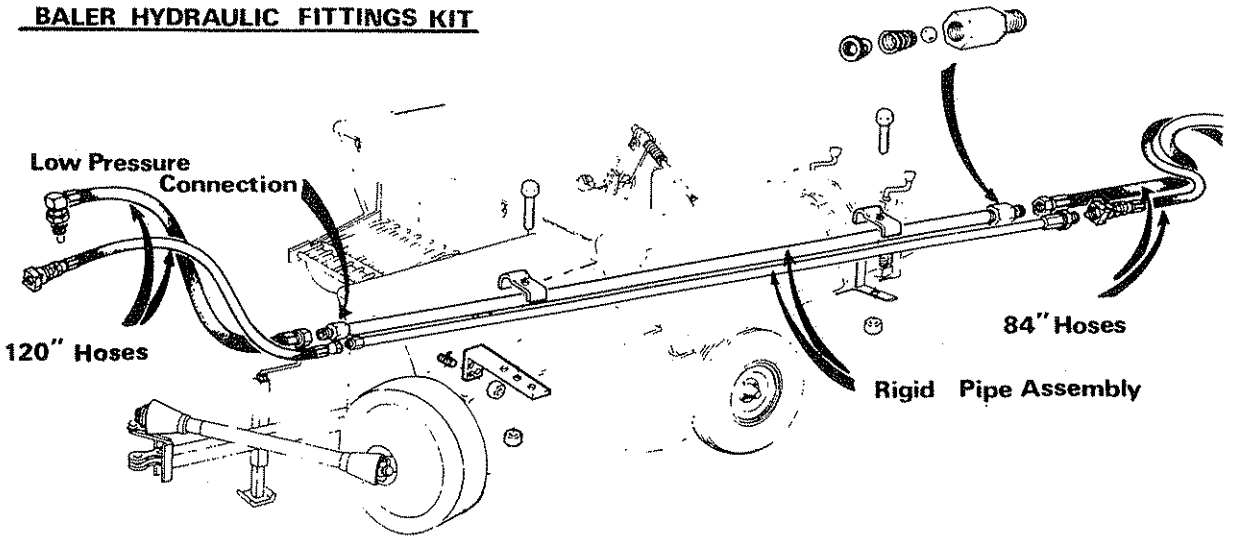
a) It must be realised that the performance of the Balepacker is entirely dependent on the efficient functioning of the tractors hydraulic system and the reliability and output of the baler. It is most important that the baler is in first class condition and particular attention should be paid to the setting-up of the knotter mechanism, the bale length register and trip device. Both the fixed and plunger knives should be sharp and correctly set up so that bales are completely separated.

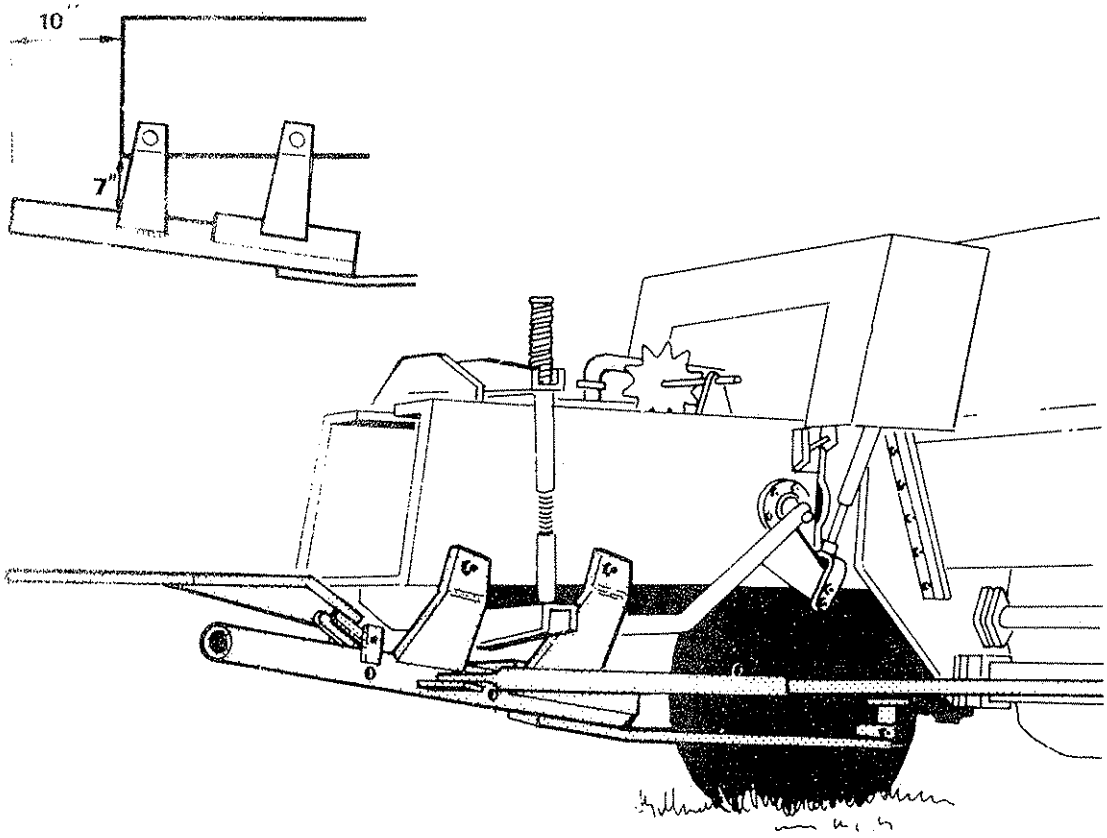
b) Drawbar An essential requirement of the Balepacker is a reasonably straight bale. Lowering the tractor hitch point raises the rear end of the baler, allowing the bale to emerge onto the bale platform in as straight a line as possible. Added advantages to lowering the hitch point will be improved ground clearance of the towbar assembly and improved visibility of the emerging bales.

c) Bale Dimensions The Balepacker will accept bales of 18" x 14" and 18" x 16" up to a maximum length of 44". It is recommended to tie bales of 38" to 40" in length. If short bales are being produced difficulty can sometimesbe experienced in getting sufficient pressure on the gripper arms for lifting the pack. It is also more difficult to get sufficient side-gate pressure to tie a firm pack. Regular shaped bales of equal length and density will reduce the number of blockages that may occur in the Balepacker. Careful preparation of the crop with even, tidy windrows prior to baling can have an enormous effect on the quality of the finished bale. In the interests of economy, to reduce the amount of twine used, as well as the number of journeys involved in travelling between field and stack, the bales can be made rather longer and heavier than is usual when manual handling is involved.

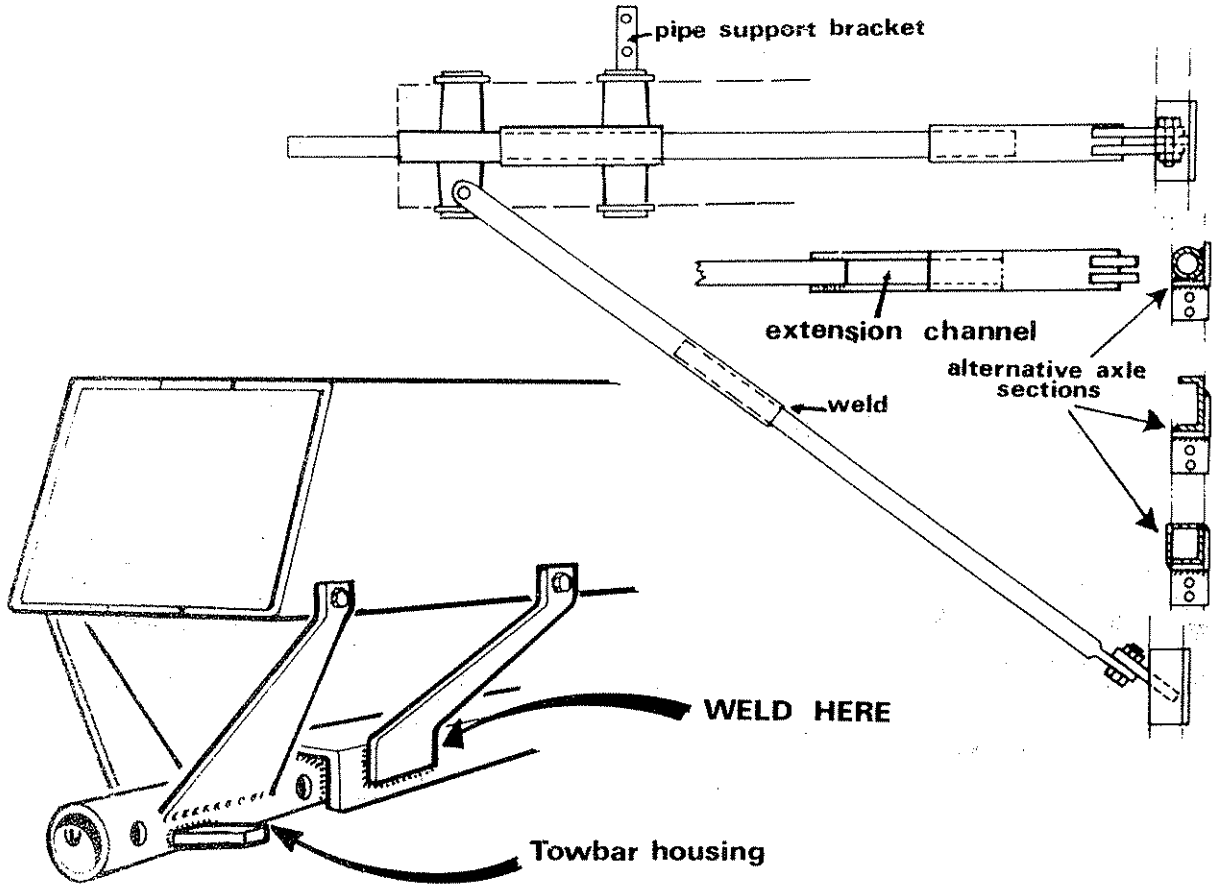
d) Hydraulic Installation The illustration shows a typical hydraulic pipe installation to a baler. Note that both pipes can be bent slightly to requirements when attaching the front mounting bracket to a convenient point on the baler.

BALER HYDRAULIC FITTINGS KIT





Towbar fitting details



e) Fitting the Towing Attachment.

The basic kit is designed to fit most balers and comprises a tow bar housing which is rigidly bolted to the bale chamber by means of two brackets. The forward end of the towbar housing is then welded to a bracket that is pinned to an assembly welded to the main baler axle.

The order in which the fitting is carried out is as follows:-

Note: Access to an electric power point for drilling, and welding equipment is essential.

i) Offer up the towbar housing to the underside of the bale chamber and locate the rear brackets so that the tubular section extends approx. 10" beyond the end of the bale chamber as shown in the diagram opposite. Mark and drill the bale chamber and bolt up loosely.

Swivel the housing around the two bolts to obtain a measurement of approx. 7" between the bale chamber and the top of the housing. Block in this position.

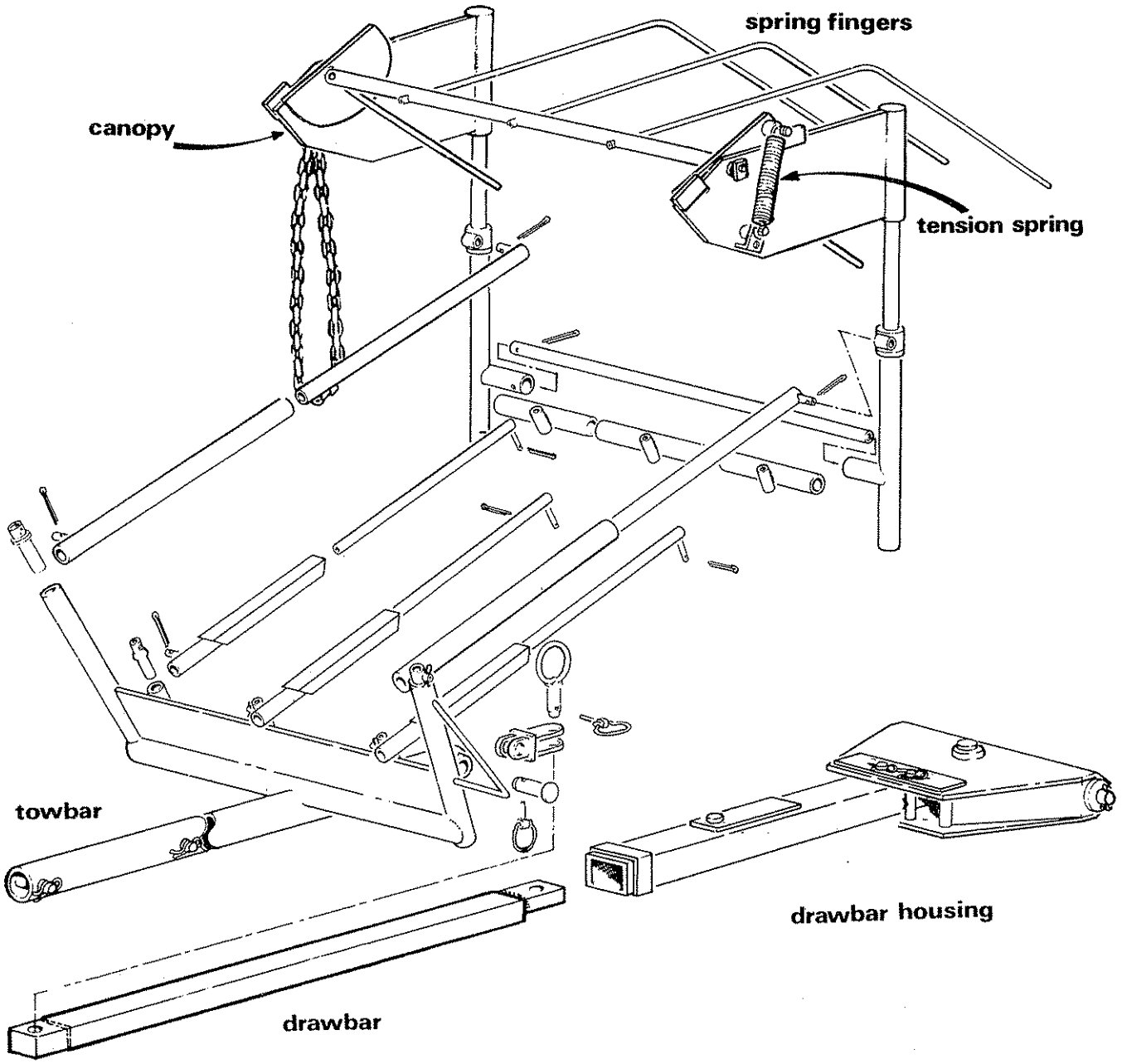
Drill and bolt the two cranked brackets to the bale chamber as far forward as possible and clamp against the channel section of the towbar housing. Recheck measurements and weld securely before tightening the housing bolts.

The pipe support bracket can be welded to either the front or rear towbar housing bracket.

ii) Locate and weld the box section lug to the mounting angle which is then aligned and welded to the baler axle as shown in the diagram. Alternative methods of welding to round, square and channel section axles are also shown.

iii) Loosely bolt the diagonal strut in position and locate the mounting lug in the widest possible position on the axle before welding. Weld the two halves of the strut firmly together where they overlap and then tighten the bolts.

iv) Balers that have a chamber of 70" or more in length require an extension piece welded to the forward end of the tow bar housing.



Bale Chute and Canopy Installation

The towbar should be inserted in the towbar housing on the baler and the telescopic steel pipes which form the chute fitted as shown in illustration. For transportation, the lower ends of the pipes can be withdrawn from their sockets on the towbar, gathered up and held against the canopy by the chain provided. It is not necessary to dismantle any of the assembly.

SECTION 3.

HOW IT WORKS.

Bales leaving the baler are pushed up a chute and enter the front of the machine individually via a sloping ramp. Complete separation of the bales is vital to enable the Balepacker to work, and the emerging bale as it is pushed up the chute can be clearly seen by the operator.

When the machine is switched on hydraulically by the isolation lever, constant pressure is maintained to the gland ends of all the rams the whole time.

As the bale slides down the ramp, assisted by feed rollers, its weight is sufficient to 'trigger off' a ram operated swing arm which, when at rest, is close against the side of the main frame and held there by an 'over centre' mechanism.

A swinging deflector plate is held in position by an overcentre latch. It ensures that the bale strikes the trigger end first. The trigger releases the over-centre mechanism of the swing arm which immediately releases the deflector and sweeps the bale round through an arc of 90^{O} to place it on the lift forks. The deflector plate is pushed aside by the bale action and is returned to its parked position by spring assistance.

As the bale is turned onto the lift forks it strikes a trip lever set in the rear of the main frame which returns the swing arm.
This trip lever through linkage operates a tappet on the sequence valve and oil is passed via a multi-directional lift control valve to the swing arm ram returning the swing arm to the side of the frame.

When in the parked position, the swing arm opens the lift control valve by a mechanically linked rod, allowing oil to flow to the ram beneath the lift platform. The bale is lifted into position in front of the pusher plate and is held in place by one way pusher flaps.

When the platform is fully raised, a striker plate attached to the platform operates a tappet on the sequence valve. The oil pressure to the base end of the ram then collapses and the platform drops. As the platform descends, it advances by means of an adjustable striker plate a profiled camwheel 'A' by one peg. This operation is repeated three times. On the fourth stroke, the profile on the cam lifts a roller which in turn operates the 'pusher in' tappet on the sequence valve and oil is diverted to the twin pusher rams. The pusher forces the column of bales to the rear and the needles enter the knotters which do not tie.

Attached to the pusher is an arm which operates a tappet signalling the platform to lower, thus the platform can only drop when the pusher is extended to its maximum. At the bottom of its platform stroke the 'pusher out' tappet is operated by a striker plate on the platform and the pusher returns due to collapse of oil pressure in the base ends of the pusher rams.

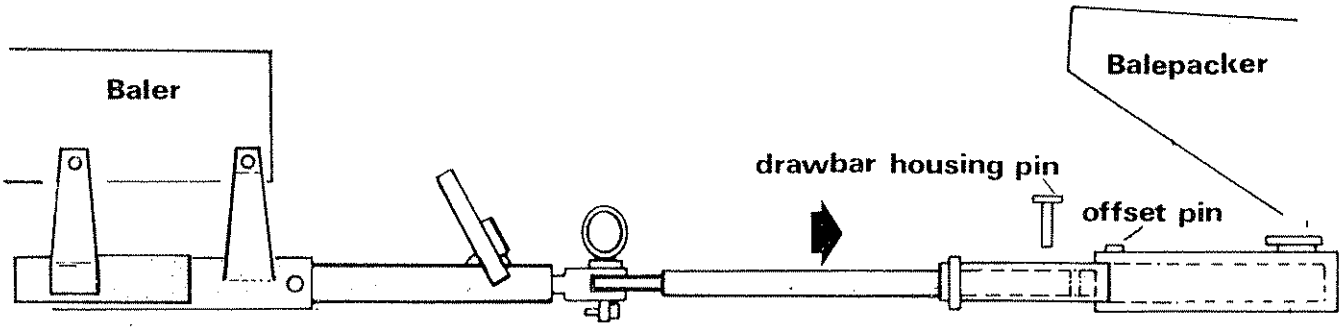
As the pusher goes in this same arm also advances a second camwheel 'B' by one peg. After the appropriate number of strokes, the raised profile on camwheel 'B' triggers off the knotter clutch and knotters operate to form a completed pack.

Section 3 OPERATION

1. Hitching Balepacker to Baler.

This requires a certain amount of operator technique.

a) Remove offset pins in the hitch-housing and the drawbar housing pin.
b) Telescope the drawbar and swing to one side.
c) Reverse baler to its approximate position, extend drawbar and swing it into place.
d) Reverse the baler to telescope the drawbar and locate it into its required position.
e) Relocate offset pins and drawbar housing pin and secure with linch pins.

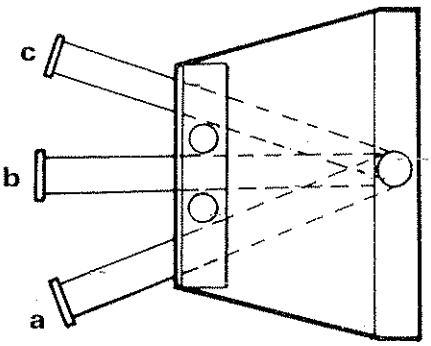


2. Travelling

Three hitch adjustments are provided.

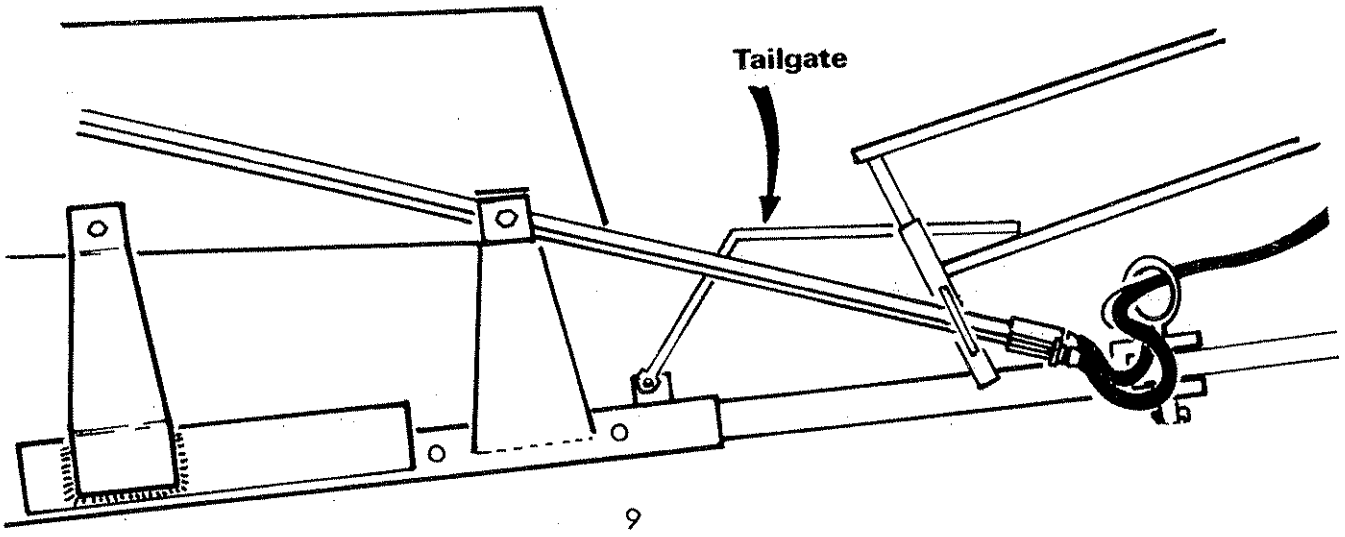
a) On the road behind a baler.
b) On the road behind a tractor.
c) In the field behind baler.

Note. When towing behind tractor in position (b) use the drawbar in extended position.



3. Attachment of Tailgate & Chute

Refer to diagram below for assembly. Note that the tailgate should be adjusted to support the bale level as it emerges from the bale chamber.



4. Coupling up the hydraulic system

a) Make sure the isolation lever on Balepacker is in the SAFE position.

b) Place tractor quadrant lever in neutral.

c) Fit the return hose to the filler plug connection on tractor.

d) Couple the high pressure hose from the baler to the tractor self-seal coupling on its external services connection.

e) Couple both the supply and return hoses that are fitted to the Balepackër. They should be passed through the ring in the top of the drawbar pin.

> WARNING
>
> It is most important that the return line to the tractor is unobstructed. Under no circumstances should a self-seal coupling be used in the return line which could cause a blockage. A pressure build-up in the return line could cause both the lift platform and pusher to operate even when the isolation lever is down in the 'SAFE' or 'STOP' position.

f) Operate the tractor quadrant lever to charge the Balepacker hydraulic system.

g) After a few seconds running, when all air has been 'purged' from the lines, the unloader valve will be heard to operate. This indicates that the hydraulic system is fully charged and it will be accompanied by a change in the engine exhaust note as the tractor 'comes off load'. The flexible hoses will also be seen to 'kick' or flex when the valve operates. Observe the pressure gauge on the manifold block which should be registering approx. 2000 psi.

If the tractor is unable to raise any pressure, check that external services has been selected on tractor; the self-seal couplings are fully engaged and the unloader valve is not sticking,
(see Unloader valve adjustment page 17)

h) After initially running up the Balepacker, the oil level in the tractor's hydraulic system should be checked.

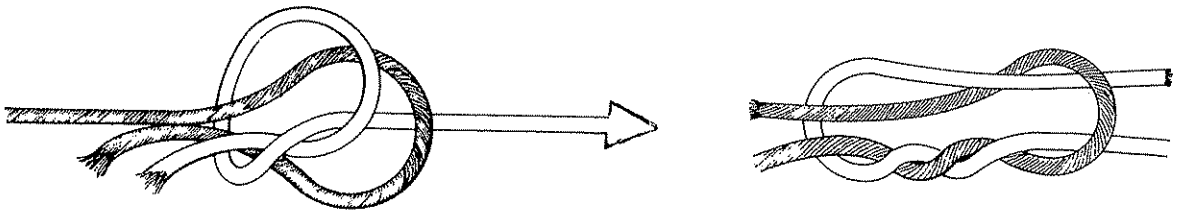
Important Note

At all times when starting-up the Balepacker, and especially at the beginning of the season, the engine RPM should be reduced to high idle speed when selecting tractor external service. This reduces the risk of the initial surge of oil raising the by-pass valve in the manifold which would allow unfiltered oil to enter the system.

5. "Stringing up"

a) Twine specification - heavy duty polypropylene.

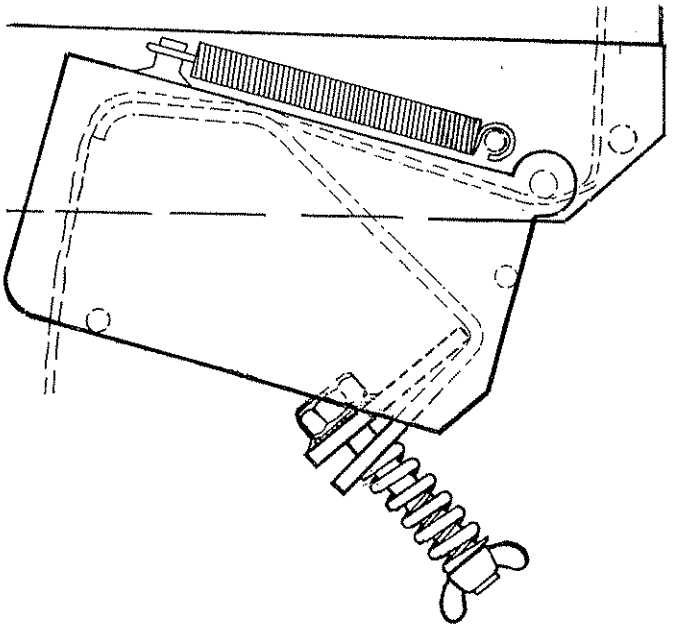
b) Four balls of twine can be held in the twine box. Both types of knot illustrated have been found satisfactory when joining the twine.



One twine pack i.e. 2 balls of twine will tie approx. 100 packs of 20 bales.

c) Twine tension

The twine tension boxes are mounted below the twine container. The twine is threaded through the box and tension is applied by a spring loaded slipper arm. The spring position should be adjusted by the wing nut so that a pull of approx. 6 pounds is required to draw the twine out through the needle eye.



d) Threading needles

A minimum amount of twine should be drawn out from the twine tension boxes, passing behind the pusher crossbeam before entering the funnel on the back of the needle. Pass the twine up through the needle eye and pull up all slack twine when securing the twine end to a fixed point of the pusher.

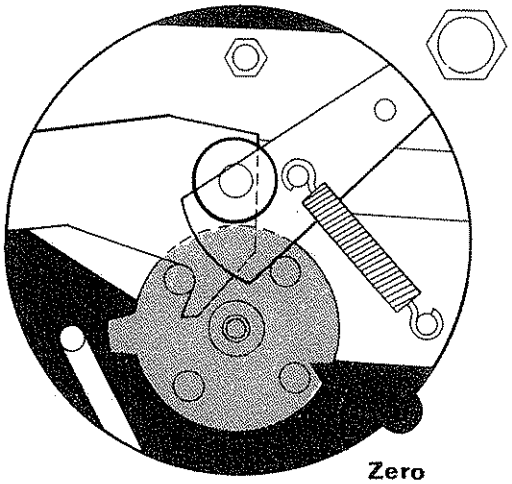
6. Selecting pack size

A pack size of either 16 or 20 bales can be made. Packs are stacked four bales high and the length is determined by fitting either the 4 peg or 5 peg counter cam to give a 16 or 20 bale pack respectively. The spare four peg counter cam is stored behind the sequence valve.

7. Counter cams

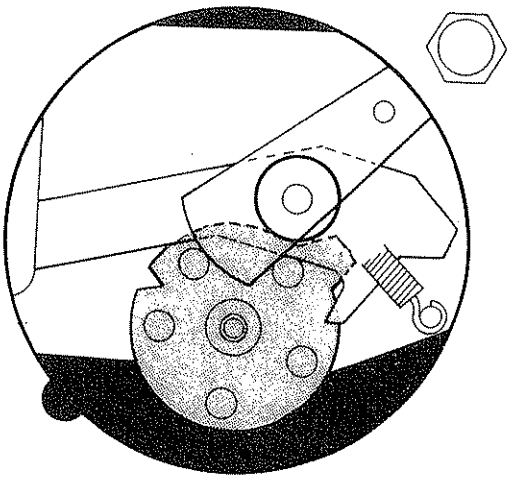
Cam 'A' controls the pack height and regulates the platform and pusher sequence allowing the pusher to go in on every fourth platform movement. Cam 'B' controls the length of the balepack by activating the knotter drive assembly on every fourth or fifth pusher stroke.

Cam A



Zero

Cam B



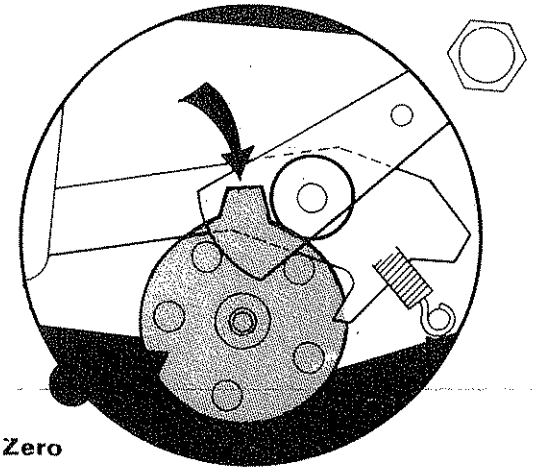
8. Cam setting

a) If no twine is held in the knotters, zero both counter cams as indicated in the diagram. The bale trip lever can be operated with the machine empty and on the fourth platform raise, the pusher will move in and a knotter cycle will be completed, both twines should then be held in the knotters.

CAUTION

Ensure side gates and top press are sufficiently loosened off, to give clearance to the pusher on its first stroke.

Cam B



Zero

b) If twine is held in the knotters advance Cam 'B' so that the profile is immediately in front of the cam roller (see diagram). Cam 'A' should remain at zero.

9. Starting the pack

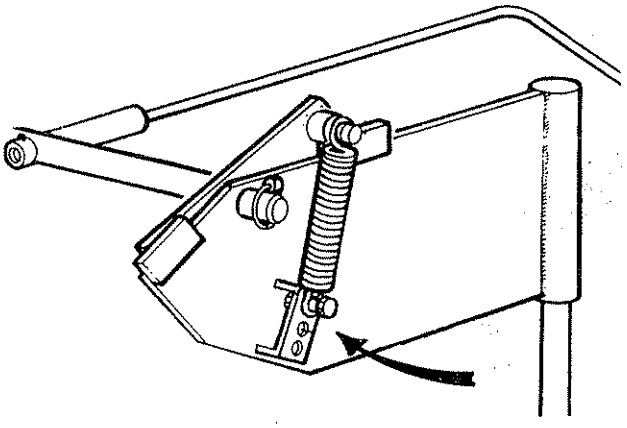
Select external services on tractor and charge the Balepacker hydraulic system. Ensure the swing arm is in its parked position and move the isolation lever to the working position. The machine is now ready to receive its first bale. It will be found helpful to almost close both pusher and platform hydraulic taps until the machine has accepted the first two or three columns of bales. This has the effect of slowing the action down and the bales are less likely to fall backwards in the stacking chamber. At all other times the machine should be operated with both taps fully open.

OPERATIONAL ADJUSTMENTS

> WARNING
>
> Before carrying out any operational adjustments, ensure that the isolation lever is down in the 'STOP' or 'safe' position and stop tractor engine.
> Ensure all guards are in position before starting work again.

1. Canopy

Tension on the canopy fingers can be adjusted by placing the spring anchor bolt in any of three positions. Additionally the fingers themselves can be bent to give more tension. Too little tension can cause the swing arm to swing round beneath the bale and be trapped. Too much tension can cause the bales to 'stick' on the ramp.



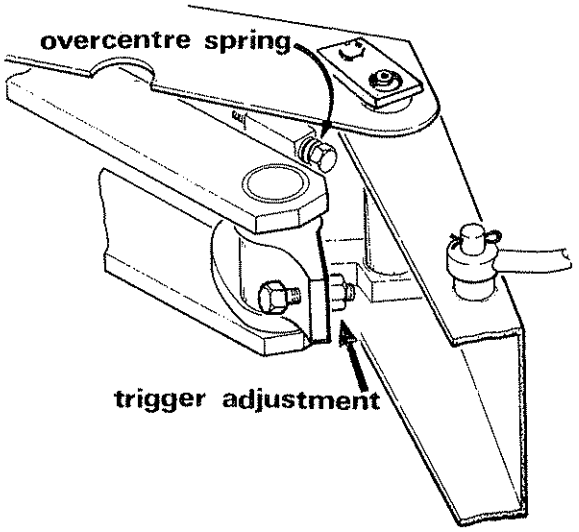
2. Swing Arm and Trigger Adjustment

The swing arm turns the bale through 90° and lays it across the platform forks.

a) Overcentre check. The swing arm must remain locked against any force that can be applied by hand at the end of the arm.

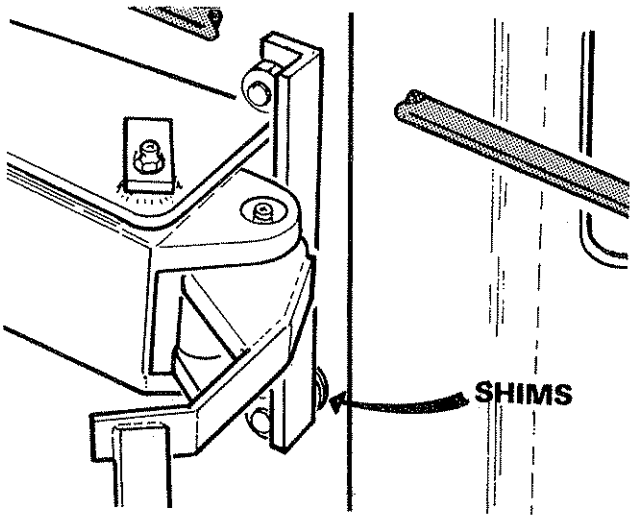
b) Overcentre trigger spring. This is not an adjustment. It ensures that the overcentre link holds the trigger assembly in the locked position.

c) Trigger adjustment. The trigger pressure for releasing the swing arm may need to be altered to suit the weight of bale. Adjust by screwing out the adjusting screw until a bale sliding down the platform is able to trip the mechanism. Lock the screw securely with the locknut.



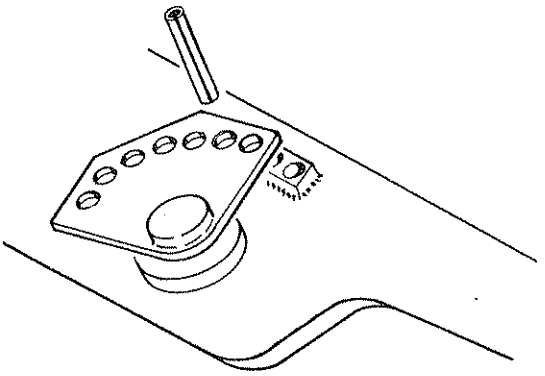
d) Swing arm alignment.

In operation, the swing arm travels through the opening in the bale deflector plate. Alignment of the swing arm is achieved by the addition of shims on the lower mounting bolt. If it is found necessary to remove the swing arm for servicing, these shims should be carefully replaced.



2e) Eccentric pin

This adjustment is set at the factory and should only be altered if wear has taken place in the linkage after a long period of service. Engaging the roll pin through any one of a series of holes in the pin flange alters the position of the swing arm when in its parked position. The rubber buffer should just contact the swing arm when correctly set. When making adjustment, the roll pin should be removed by driving it right through the housing.

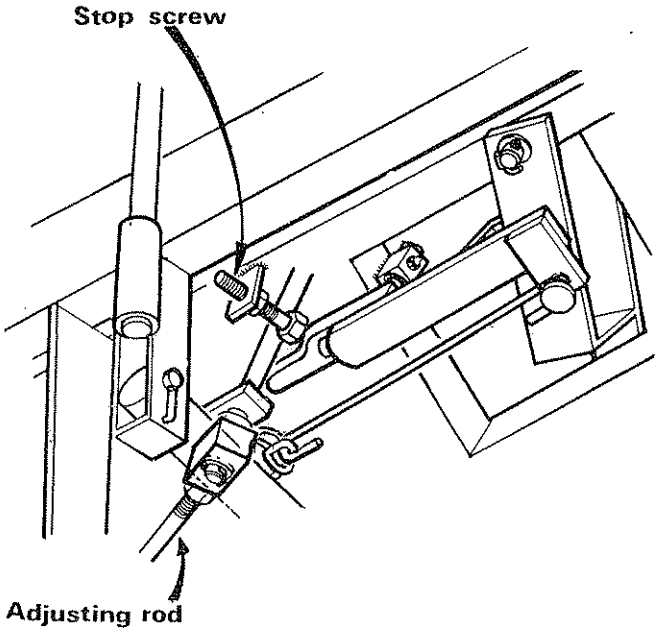


f) Bale Deflector Plate

Purpose of the deflector plate is to direct the bale endways to the swing arm trigger mechanism. It is held in position by an overcentre latch which is connected to the trigger by a threaded rod. As the bale hits the trigger, the latch is released and the bale pushes the deflector to the side as the swing arm sweeps round.

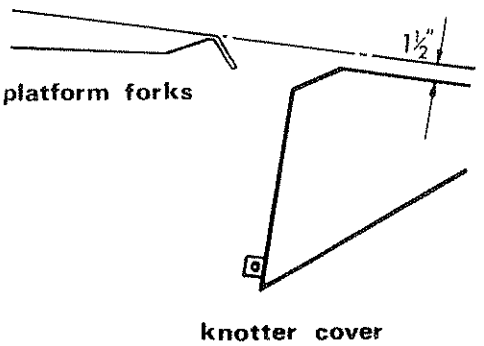
Adjustment of the overcentre latch to release the deflector is by the threaded rod. The swing arm should move away from its parked position approx. 5 inches before the deflector is released.

The setscrew is a stop for the over-centre latch. It is not an adjustment.



4. Lift platform adjustment

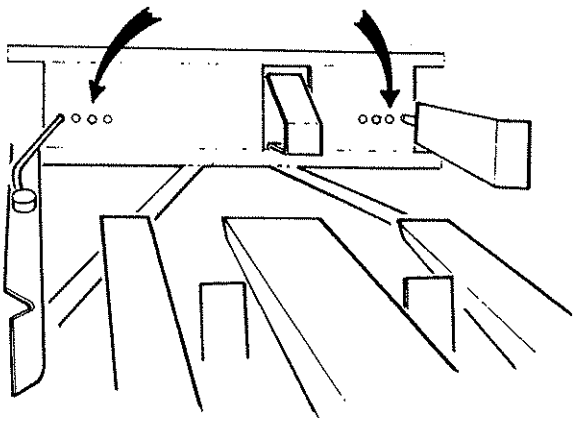
In the fully raised position the platform should be at least 1.1/2" above the knotter cover. This can be checked by placing a straight edge along the forks and extending over the top of the knotter cover. Adjustment is provided by a threaded tube under the platform. Should the material foul the knotter cover it is permissible to raise the forks. Excessive adjustment will result in slack twine around the bale packs. This is set at the factory and no further adjustment should be necessary.

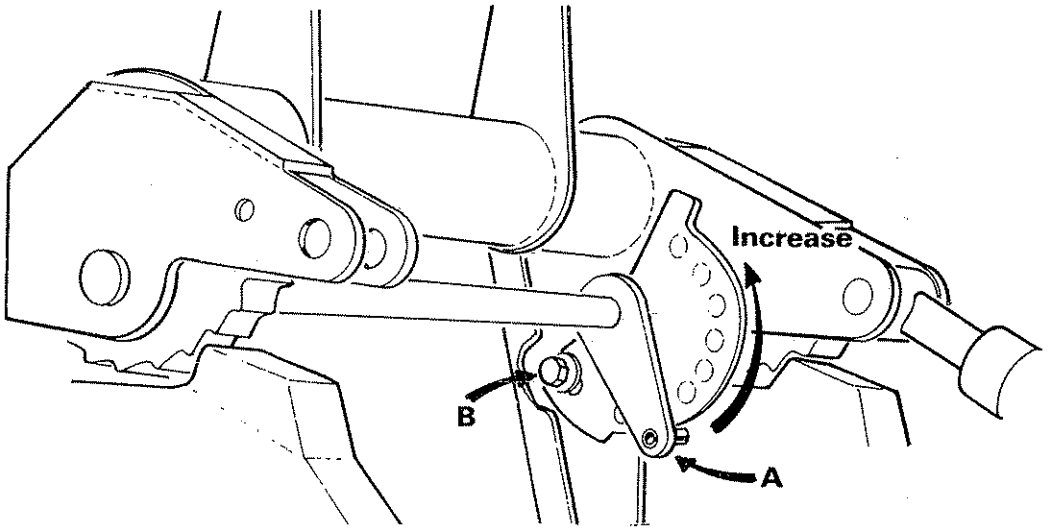


5. Centralizing bale on platform

It is essential that the bale is placed on the platform forks so that the pack is built up centrally in the machine and the twines spaced equally from the bale ends.

On level ground the bale will tend to be thrown to the left, so the correct adjustment on this side is most important. Some allowance must also be made for uneven lengthed bales. An extra long bale can become wedged between the two sides of the rods and so fail to engage the bale trip lever. Adjustment is made through a series of holes in the rear frame through which the rods can be positioned. A hole in the left side of the frame allows access to the spring loaded catch on that side.

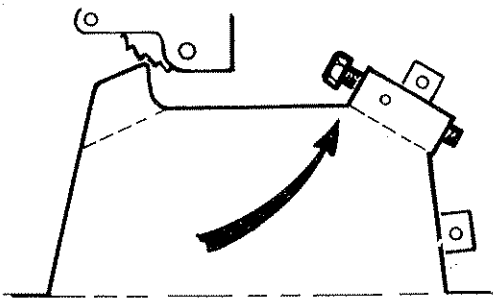




6. Bale dimension adjustment

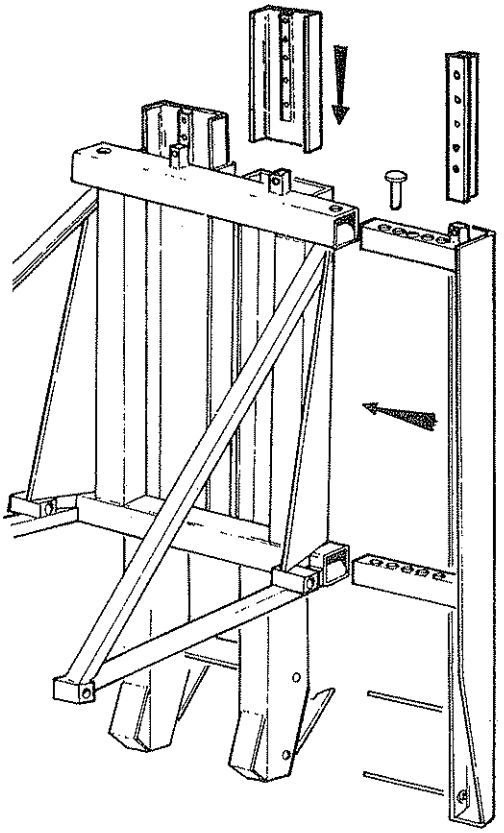
An adjusting cam is provided for altering width between the pusher and the formed column of bales. If the aperture is not wide enough, the lifting bale will foul the previous bale column. This dragging effect has the symptom of insufficient power on the platform stroke. If the aperture is too wide then the bale will tend to fall back down and twist. Adjustment of aperture width is made by closing the pusher tap, and opening it on a pusher stroke to allow the pusher to travel halfway before reclosing. Rotate the eccentric cam by moving the lever 'A' up or down. A spring loaded ball engages with indents on a register plate which is bolted to the inside of the pusher frame. The slotted bolt hole 'B' allows for marginal adjustment of the register so that the eccentric tooth on the cam can be fully engaged against the back-stop.

The large screw is an abutment stop for the pusher controlling the depth of the needles entering the knotters. This adjustment is pre-set at the factory and locked by a roll pin. It should not be disturbed unless major replacements are necessary.



7. Pusher width adjustment

Adjustment can be made to the side rails and top extension pieces of the pusher assembly to accommodate the average bale length and average height of a stack of four bales. Overall pusher width should be 6" less than the bale length. The bale ends will curl around as they are pushed into the side gates if this adjustment is incorrect. Both side rails should be adjusted equally. Total variation in pusher width is 11".

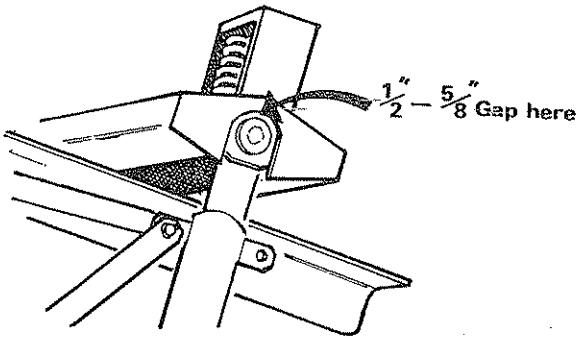


8. Pusher height adjustment

Provision is made for accepting bales from a 16" baler chamber by moving the four extension pieces upwards in the top of the pusher frame. Total adjustment is 8". Extensions are held by nut and bolt.

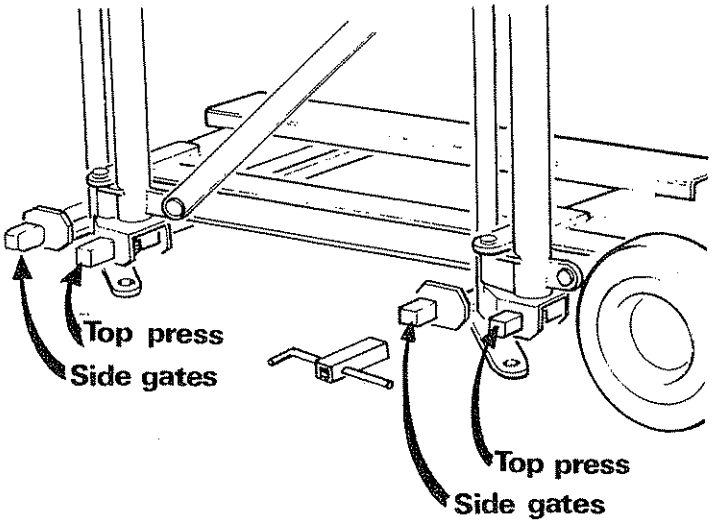
9. Top Press adjustment

When starting, the forward end of the top press should be slackened right off, and only moderate pressure applied at the rear. After the first pack, pressure should be increased at the front until the correct tension on the pack is reached. The rear adjustment should always have greater pressure than the front end. Approximately one ton of force is applied to the pack when the rear jack anchor pin has been depressed ½" to 5/8" in the cross member.



10. Sidegate adjustment

The main purpose of the sidegates is to centralize the forming pack within the machine. When starting a pack only moderate sidegate pressure should be applied to the front end to hold the column of bales upright. After three columns of bales have been made apply pressure to the rear end.

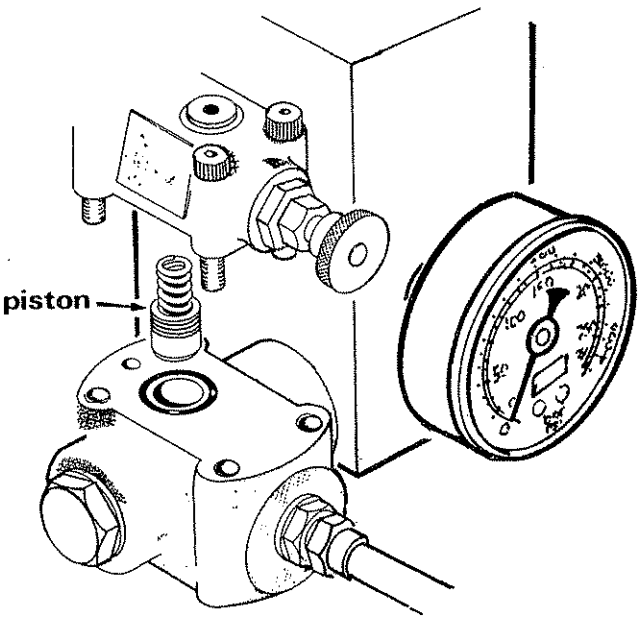


10. Unloader Valve adjustment

The unloader valve is provided to maintain pressure in the Balepacker circuit without constant loading of the tractor hydraulic system and resultant oil overheating. The valve is adjustable and must always be set to unload before the tractors relief valve setting is reached.

Note: Under no circumstances should the valve be adjusted to more than 200 psi above the factory setting of 2000 psi.

The pressure gauge situated on the side of the manifold should register a reading of 2000 psi and the unloader valve is set at the factory to this figure. If a considerable reduction in psi is required to allow the unloader valve to operate then the machine will lack power and the platform or pusher could 'stall' when fully loaded. During work and particularly in a knotting cycle if pressure falls below 1500 psi then the tractor oil flow is suspect and should be investigated.



Before attempting to dismantle the valve, remove the return pipe connection at the tractor to ensure that there is a steady return flow. If there is no flow, it is intermittent or aerated, the problem will be in the tractor. Check oil level, external services selection, and the self-seal couplings in the supply line for full engagement.

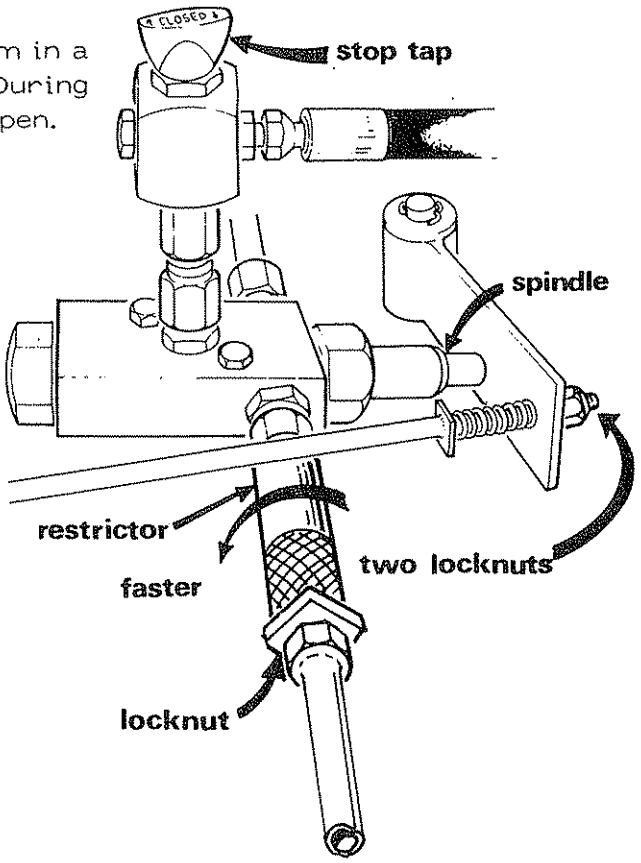
If there is a steady flow, and no pressure can be raised, then a sticking unloader valve piston can be suspected. It will be necessary to remove the four socket-headed screws and lift off the cap.
Lift out the return spring and extract the piston. Examine for dirt and contamination. Clean off and lubricate with oil before re-assembly.
Do not use emery cloth on the piston and ensure that '0' rings are in place before tightening down the cap evenly.

To adjust the valve, loosen the locking nut and turn the knurled wheel until a reading of 2000 psi. is obtained on the gauge before relocking.

Note. By screwing the knurled wheel fully in, the tractor's hydraulic relief valve pressure can be obtained.

11. Platform tap

This tap is provided to hold the platform in a fixed position when making adjustments. During normal operation the tap should be fully open.



12. Lift Control Valve

Its purpose is to separate the operation of the platform from the swing arm so that the two do not meet. The valve is located on the main frame below the platform rollers.

With the swing arm in the parked position, the valve should be adjusted by tightening or loosening the self-locking nut until there is a further 1/8" of movement when the spindle is fully depressed by hand.

Note: Considerable effort may be required to fully depress spindle.

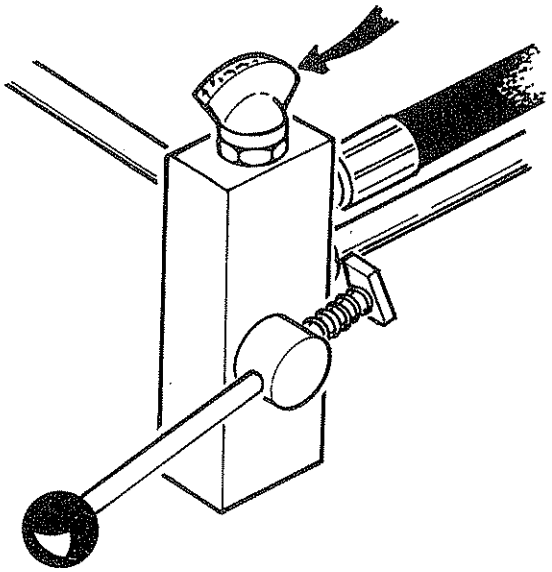
13. Swing Arm Restrictor

Situated in the hydraulic line between the lift control valve and the swing ram, this hand-adjusted restrictor can be set to regulate the speed of the swing arm. Too rapid an arm movement can fling a light bale and wedge it across the corner of the frame.

When making adjustment, the oil should be at operating temperature. Turn the knurled barrel of the restrictor anti-clockwise to increase arm speed (see above illustration). Secure barrel with the locking nut.

14. Pusher Ram

The tap which is situated in the top of the isolation valve controls oil flow to the base end of the pusher ram. It is provided for making adjustments only and should be fully open during normal operation.

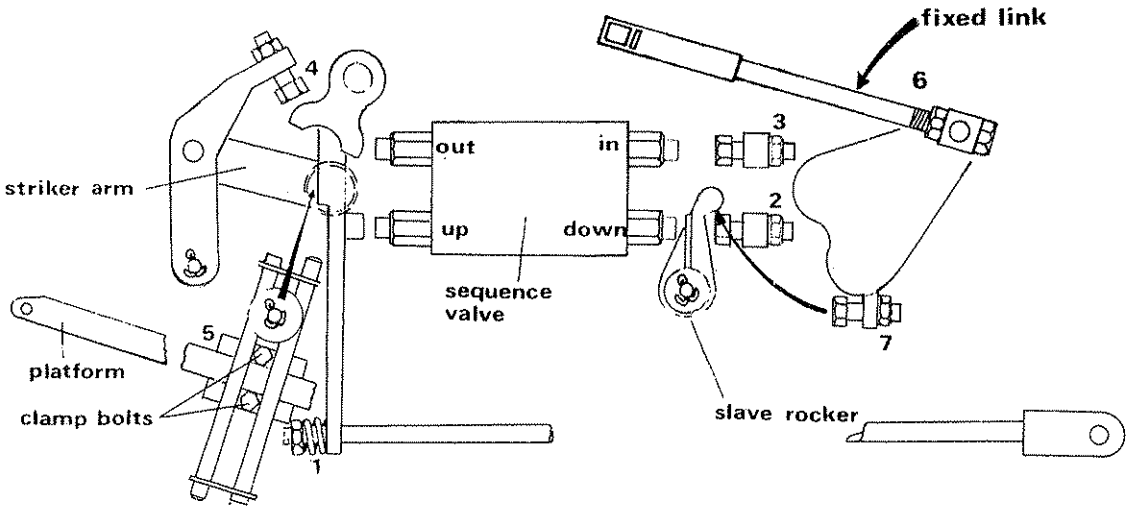


15. Sequence Valve adjustment

Tappets that control the operation of the sequence valve are correctly adjusted at the factory and should not require further attention during the season. Removing and replacing the sequence valve should not require tappet re-adjustment.

Tappet adjustment is critical. Adjusting one tappet can affect the operation of the others. If for some reason it becomes necessary to make a complete readjustment, then the setting up of the valve should be carried out in order of the numbering shown from No 1 to No 7.

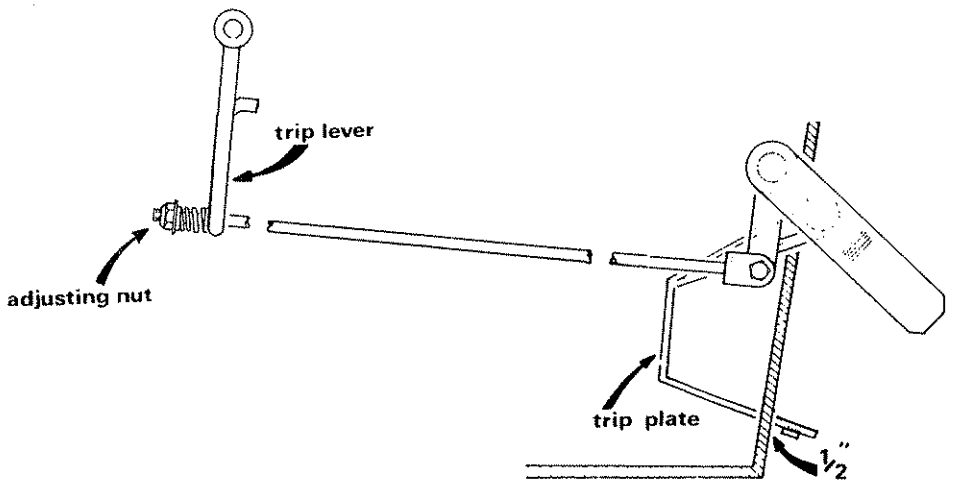
Note. When making each adjustment ensure that all free movement is taken up in the various linkages, all return springs are in position, and when provided, the adjustment is firmly secured with the locknut.



Adjustment 1

a) With the machine stopped, set counter cams to zero.
See page 12 paragraph 8 (a).

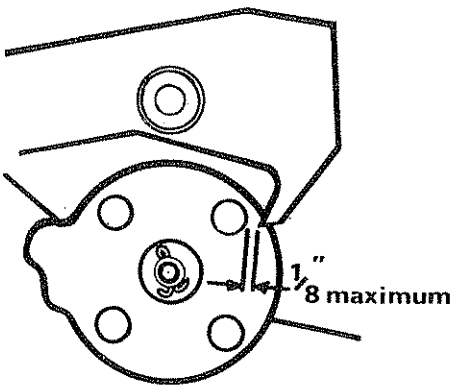
b) Operate bale trip plate and ensure that there is ½" of free movement of the trip plate from the rear of the main frame before contact is made between the trip lever and valve spindle. Adjust to this clearance by the self-locking nut on the trip rod.



Adjustment 2 - Platform down

a) Close platform tap, start tractor, raise isolation lever and operate bale trip.

b) Open tap and allow platform to raise about halfway before reclosing, ie; the roller on the striker arm mid-way between upper and lower striker plates. Lower isolation lever and stop tractor.



cam A

c) Raise the striker arm to remove free play at tappet 2 and check that there is clearance up to a maximum of 1/8" between the counterhook tip and the peg on cam wheel 'A'.

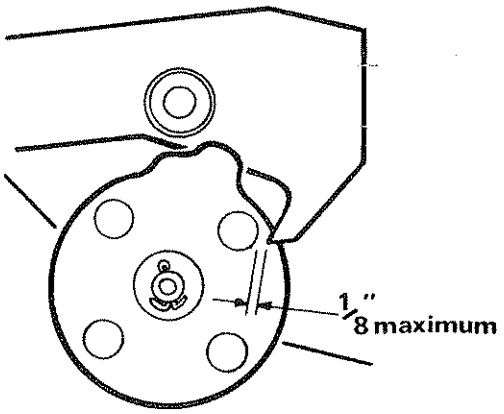
d) Adjust tappet 2 to give minimal clearance and rotate cam wheel to check that clearance also exists on the other two pegs.

Adjustment 3 - Pusher IN

a) Select pusher stroke by rotating cam wheel 'A' until roller is lifted by profile.

b) Raise the striker arm to remove free play at tappet 3 and check that there is clearance up to a maximum of 1/8" between counter hook tip and peg.

c) Adjust tappet 3 to give a minimal clearance with contact just being made with the valve spindle.



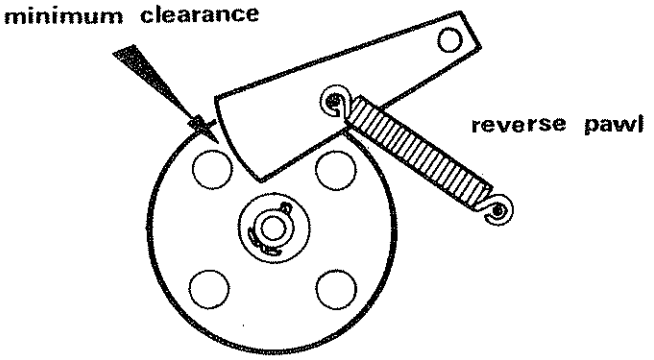
cam A

Adjustment 4 - Pusher OUT

a) Press down striker arm until reverse pawl just drops down behind counter peg.

b) Adjust tappet 4 to give this minimum clearance.

c) Release striker arm and unscrew tappet 4 out two complete turns and lock.



Cam A

Adjustment 5 – Striker rod adjustment

a) Open tap to allow platform to drop.

b) Set camwheel A on pusher stroke with roller on top of profile.

c) Close pusher tap.

d) Start tractor, raise isolation lever and operate bale trip lever. The platform will rise and remain at the top of its stroke.

e) Close platform tap before lowering isolation lever and stopping tractor.

f) Slightly loosen the striker rod clamp bolts and hammer up the lower striker plate until there is no clearance between striker roller and plate. Remember that free play must also be taken up at the tappet.

g) A scribe mark or indent made by a centre punch is positioned on the lower striker plate rod flush with the top of the clamp block. Raise the mark a further 3/8" by tapping the lower plate with a hammer. Tighten the clamp bolts sufficiently to hold this setting.

h) Open platform tap, start tractor and raise isolation lever.

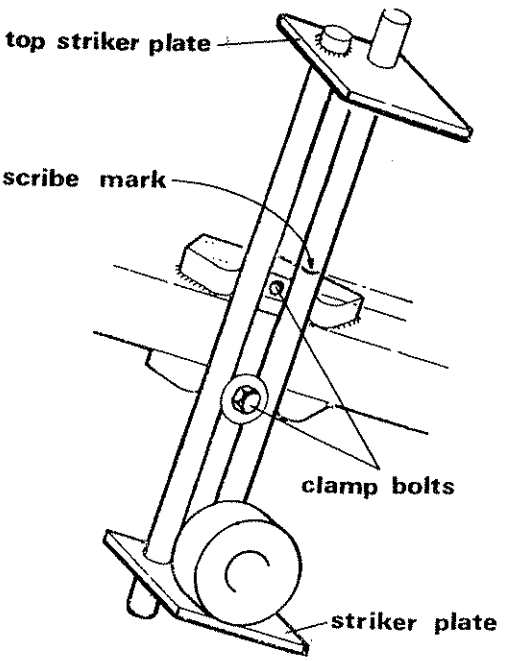
i) This next adjustment must necessarily be carried out with the gland end of the lift ram pressurised holding the platform against the rubber buffers. Standing in front of the machine, raise or lower the top striker plate to give an 1/8" clearance between the reverse pawl and counterhook peg on Cam 'A'.

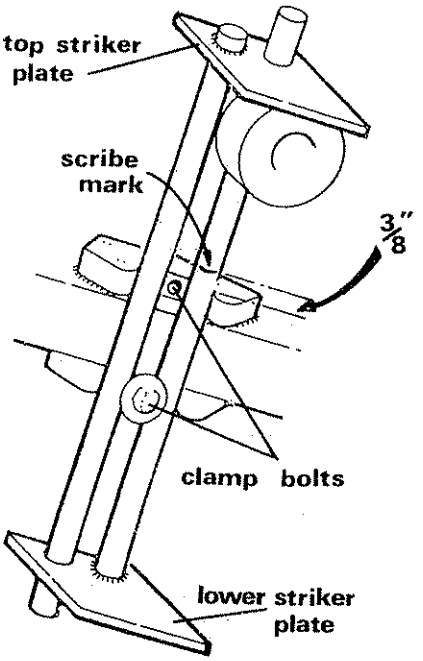
j) Recheck the scribe mark on the lower striker rod to ensure that no movement has taken place before firmly tightening both rod clamp bolts.

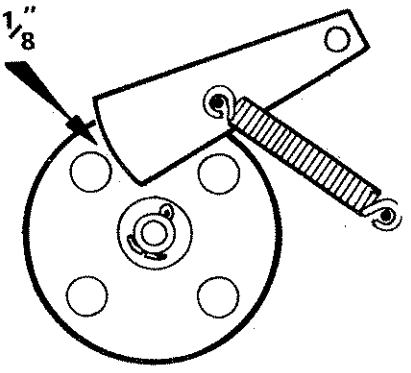
k) Lower isolation lever and stop tractor.

CAUTION:

When the tappets and striker rods are correctly adjusted, approx. 3/16" of tappet spindle should still be visible when they are fully depressed. Any finer adjustment will apply pre-load and result in internal damage to the valve.

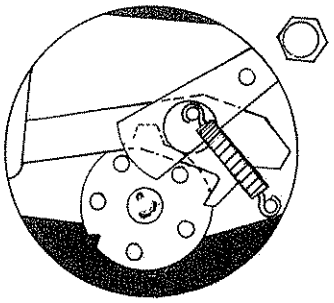






cam A

CAUTION: Before proceeding further, the knotter Cam 'B' should be rotated clockwise by raising the reverse pawl and turning the camwheel until the profile is immediately in front of the roller. This is done to prevent the operation of the knotters resulting in slack twine being entangled in them.



Adjustment 6 - Fixed link adjustment

a) Fully screw in tappet bolt No 7.

b) Place cam wheel 'A' in pusher stroke ie. roller on top of profile.

c) Close pusher tap.

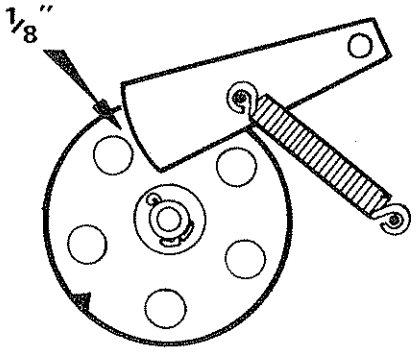
d) Start tractor, raise isolation lever and operate bale trip lever. The platform will raise, but the pusher is unable to move.

e) Close platform tap.

f) Open the pusher tap slowly and allow the pusher to complete its full travel, coming to rest against the abutment stop. If the pusher does not meet the abutment stop, the needle alignment must be checked before proceeding further.

g) Isolate Balepacker and stop tractor engine.

h) The threaded rod 6 should now be adjusted to allow the reverse pawl of the knotter cam 'B' to drop behind the counter peg with 1/8" clearance between pawl and peg.



cam B

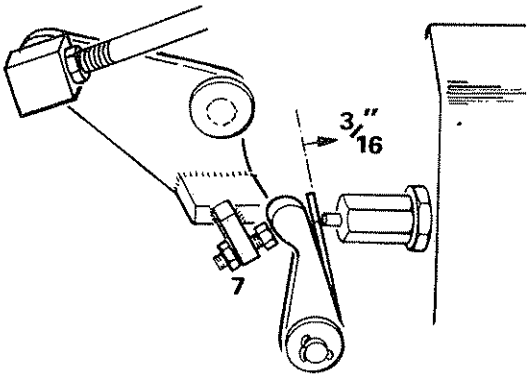
Adjustment 7 - Pusher slave rocker

Ensure platform tap is closed

a) Screw out tappet 7 until it contacts the slave rocker.

b) Continue to screw out until the rocker has depressed the spindle approx. 3/16" (approx. four full revolutions of the tappet bolt.

c) Open pusher and platform taps - start tractor raise isolation lever and the pusher should return to its parked position.



16. Needle adjustment

When carrying out needle adjustments, the pusher should be firmly against the abutment stops and the pusher tap closed. If it has been necessary to remove the knotter cover to make adjustments the pusher should be operated very slowly by using the tap so that no damage will be caused and any misalignment may be remedied.

Three adjustments are provided for setting the needles:-

i) Side to side movement of the needles

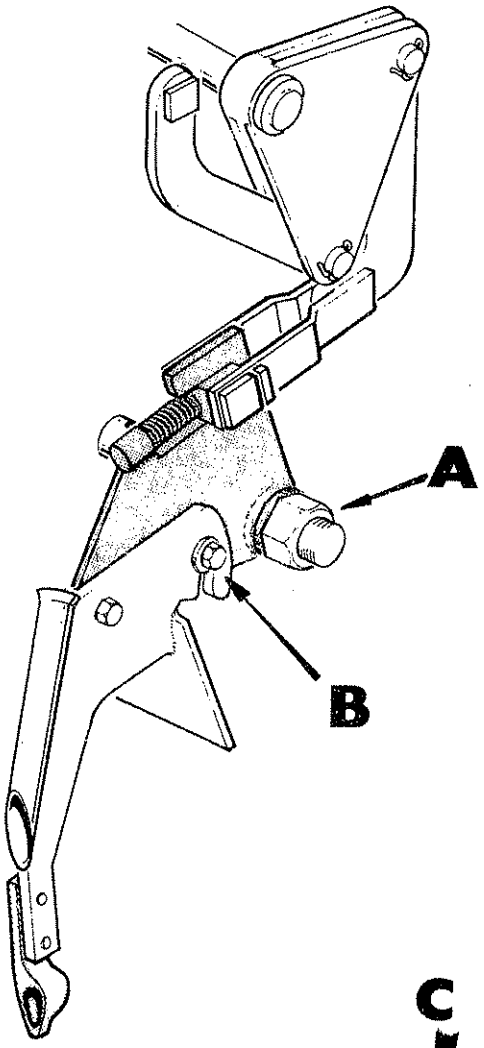
A clearance of approx. 1/32" between the needle and the knotter frame must be maintained. Loosen off locknut 'A' and screw fulcrum pin in or out with a tommy bar through the hole provided before relocking nut.

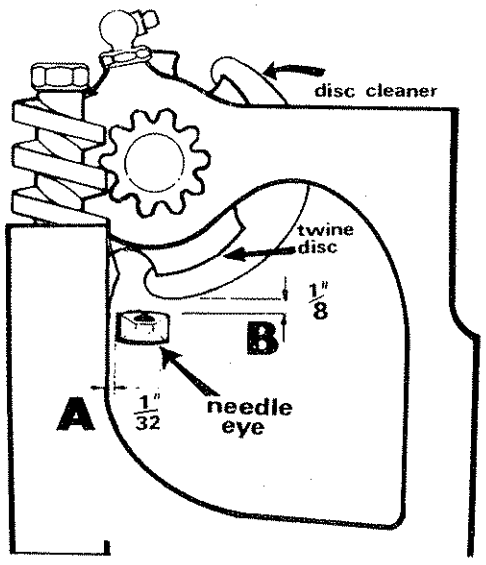
ii) Needle height

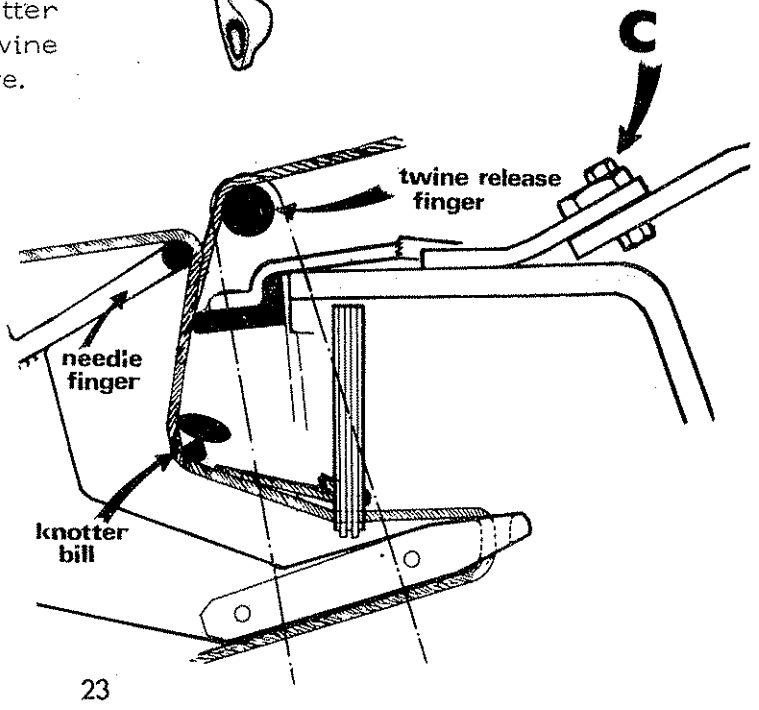
The lower section of the needle is pivoted and adjustment is provided for up and down movement of the needle by a slotted bolt "B". The needle eye should have a 1/8" clearance when it passes beneath the cleaners in the twine disc.

iii) Needle arc

The distance which the needle eye travels beyond the twine disc can be altered through a limited range of movement by swinging the knotter forwards or backwards. An eccentric sleeve and locking bolt "C" is provided on the stripper arm support. The adjustment should be rotated until the twine finger carries the twine into the bottom of the stripper arm groove, holding it against the side of the knotter bills with the minimum of twine deflection when viewed from above.







17. Knotter adjustments.

We strongly recommend all owners and operators to examine closely the mechanism of the knotters, because familiarity of the function of the various parts will be of tremendous help in making any adjustments in a quick and easy manner.

All knotters are properly adjusted and tested before they leave our Works and they should work efficiently without immediate adjustments. If the Balepacker, when new, misses tying a few knots do not re-adjust knotter immediately, as this defect may be caused by paint on the knotter components. The Balepacker should be operated until the action of the twine smoothes out any roughness due to the paint. Also make sure that there is no grease on the bill hooks and twine discs; these parts should always be absolutely clean and smooth. If the knotter still fails to tie properly after this initial operation period, turn to the Trouble Summary Chart.

a) Twine holder.

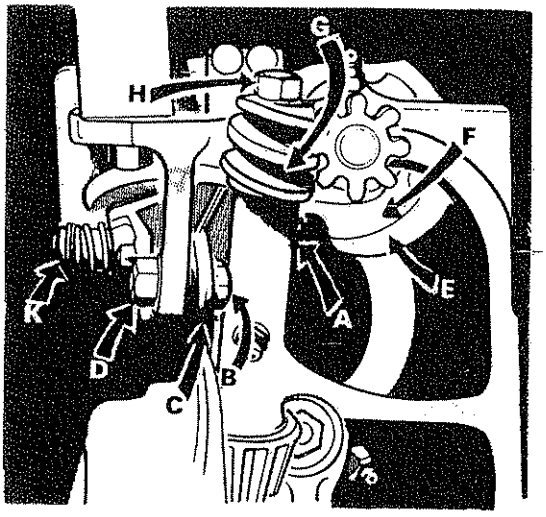
The twine holder (A) consists of a double plate which holds the twine in the disc under pressure from the two springs (C) which can be adjusted with the bolt and nut (B) & (D). Release the nut and tighten the bolt to increase the pressure on the springs.

If the pressure on the twine holder is too great, sufficient twine may not slip through the twine disc, resulting in the twine being broken at the bill hook.

Should the pressure on the twine holder be insufficient the twine may slip out of the twine disc as the pack is being formed.

If the above adjustments do not correct the problem:-

1. Reduce the tension on the pack.
2. Check that the pressure on the twine tension plates is correct.



b) Twine disc.

When correctly adjusted to receive the twine, the left side of the notch in the twine disc (F) should be positioned 1/16" in front of the edge of the cleaner (E) when the cleaner is moved to the left as shown. The twine disc can be adjusted to this setting by repositioning the worm gear (G) on the shaft.

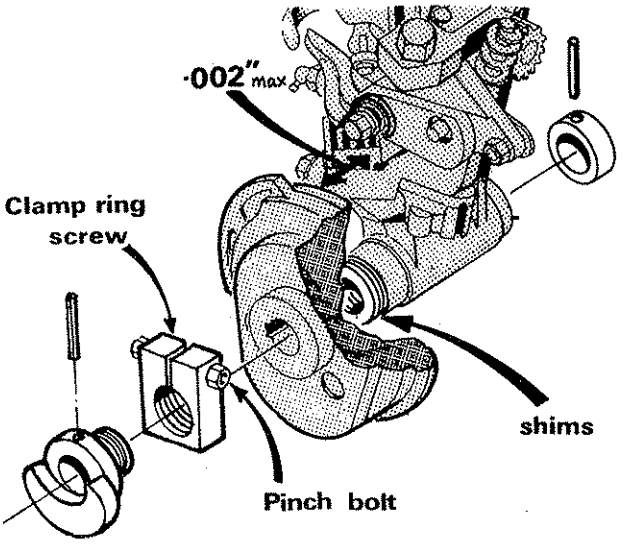
To release the worm gear from the tapered shaft, unscrew the nut (H) and tap the worm gear along the shaft towards the nut. The worm gear can then be rotated as required in order to advance or retard the twine disc position. Finally, securely tighten up the lock nut (H) to lock the worm gear in the required position. Check that both knotters are timed the same.

c) Knotter Bill tension

This is achieved by the tongue roller pressing against a spring-loaded cam and adjusted by locking nut (K). Excessive tension will cause the knots to hang on the bill hook while too little tension will result in loosely tied knots that will pull apart.

d) Cam gear adjustment

With the knotters in the rest position, there must be no free rotary movement at the billhook. This is achieved by obtaining a rubbing clearance between the rim of the drive cam and the flat of the billhook pinion gear.
Shims are fitted on the knotter shaft between the cam gear and the knotter frame to prevent a pre-load on the billhook pinion when the clamp ring screw is tightened. If backlash and therefore movement of the billhook cannot be removed after tightening the clamp ring, then the cam gear should be slid back along the shaft so that a shim washer can be cut out.



When making this adjustment the pinch bolt should only be loosened sufficiently to allow the clamp ring screw to be moved. Do not tighten the clamp ring screw with excessive pressure otherwise the knotter will be difficult to rotate and absorb a lot of power. Back off the ring screw very slightly before tightening the pinch bolt. This allows the fine pitch thread to be free of tension.

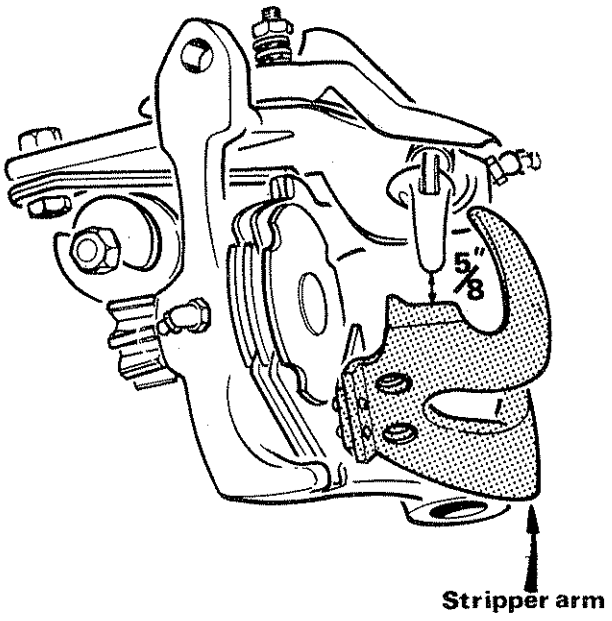
e) Stripper arm

As the bill hook rotates, the jaw opens and picks up twine from the twine disc. The stripper flange rides down the heel of the bill hook and strips the loop of the knot off the bill hook and over the two ends of the twine which are held by the tongue in the bill hook jaw thus completing the knot.

The stripper arm is properly adjusted when the stripper lightly rubs against the curved surface of the bill hook with sufficient pressure to cleanly strip the loop of the knot off the bill hook. Should adjustment be required, the stripper arm can be slightly bent, taking care not to overbend the arm or damage the knife.

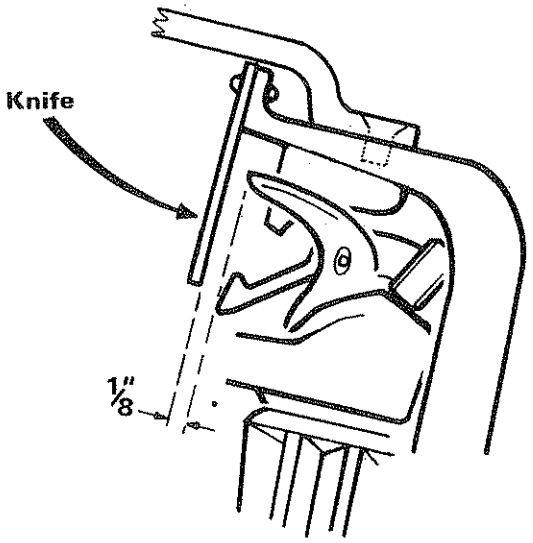
If the stripper arm is bent down too far, it will be unable to ride back over the tip of the knotter-bill and the roller end of the stripper arm will be broken off.

There should be a clearance of ½" – 5/8" between tip of the knotter bill and the stripper when arm is at maximum stroke.



f) Twine knife

A tungsten carbide tipped knife is riveted to the stripper arm and swings between the billhook and the twine disc cutting the twine.
Because heavy duty twine is used and the action is a lot slower than the knotters on a baler, the knife must be kept really sharp. The tungsten carbide facing maintains the cutting edge of the knife longer, however it should be regularly checked. It is advisable to remove the stripper arm completely to re-sharpen the knife.
Clearance between the knotter bill and the knife should be approx. 1/8".

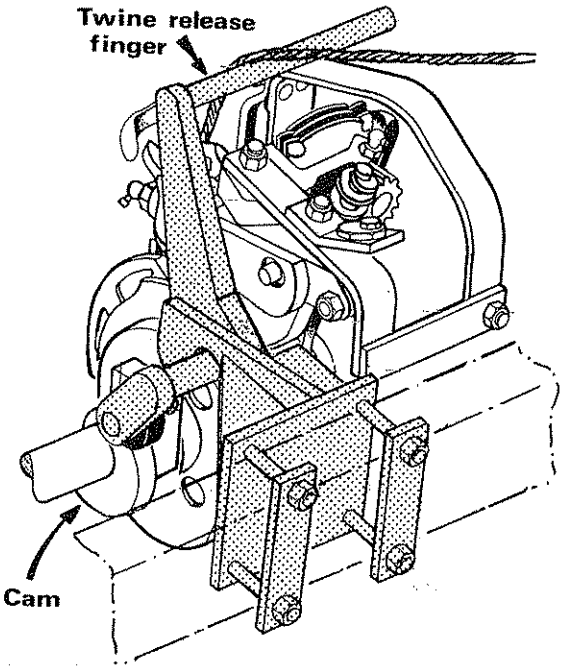


g) Twine release finger

When correctly set the twine release finger carries the pressure of the twine around the pack instead of it bearing against the stripper arm.

The release finger is operated by a roller which bears against an eccentric cam attached to the knotter shaft.

As the knotter shaft rotates, the release finger is timed to collapse at the moment that the knotter bill starts to rotate. Thus the billhook is not under severe strain in attempting to pick up the twine in tension.



If it appears that the twine release finger has become bent this will have been caused by a knot hanging onto the knotter bill. Stripper arm should be checked to ensure that the saddle that wipes the knot off the billhook passes ½" to 5/8" beyond the billhook tip when the arm is at maximum stroke. Billhook tension should also be checked.

1. Retiming knotter drive assembly

i) Raise counter hook and rotate Cam A until roller is on top of profile.

ii) Close hydraulic tap on pusher ram.

iii) Start tractor to pressurise system and raise isolation lever.

iv) Operate bale trip lever. The platform will rise but the pusher is unable to move.

v) Close tap on lift ram to prevent platform dropping.

vi) Move isolation lever to SAFE position and stop tractor engine.

vii) Remove knotter cover completely to improve accessibility.

viii) Place the large T spanner on the squared end of the knotter shaft and rotate knotters until the spring loaded pawl comes up hard against the clutch trip arm. Do not move the shaft further until timing is completed.

ix) Release spring pressure on the roller lever and remove bolt, split pin, trip arm and chain idler roller.

x) Rotate knotter drive sprocket until the cam roller is in position shown in upper drawing with ¼" clearance.

xi) Pull the chain tight and pass it up round the sprocket and replace the chain idler roller which will secure it against the sprocket. The timing is now unable to slip. Recheck clearance before proceeding further.

xii) Reassemble the trip arm and the roller lever assembly. Replace bolt and spring and tighten nut sufficiently to tension the roller against the clutch housing.

xiii) Connect up the chain as shown in upper diagram.

xiv) Rotate knotter shaft until spring loaded pawl engages against the clutch trip arm and adjust the nut on the threaded rod until the depth of engagement of the pawl against the arm is 3/16" approx.

xv) Open taps on both the lift and pusher rams.

xvi) Replace the knotter cover.

Note: To facilitate assembly of the spring loaded chain, open lift ram tap momentarily to allow the platform to drop a little. This will enable the end of the chain to be released from its anchor pin. Engage the lower end of the chain in the spring, draw it round the bottom sprocket and with a piece of string threaded through the chain two or three links from the end and passed over the ram rod pin the chain can be drawn tight to refit it to the anchor pin.

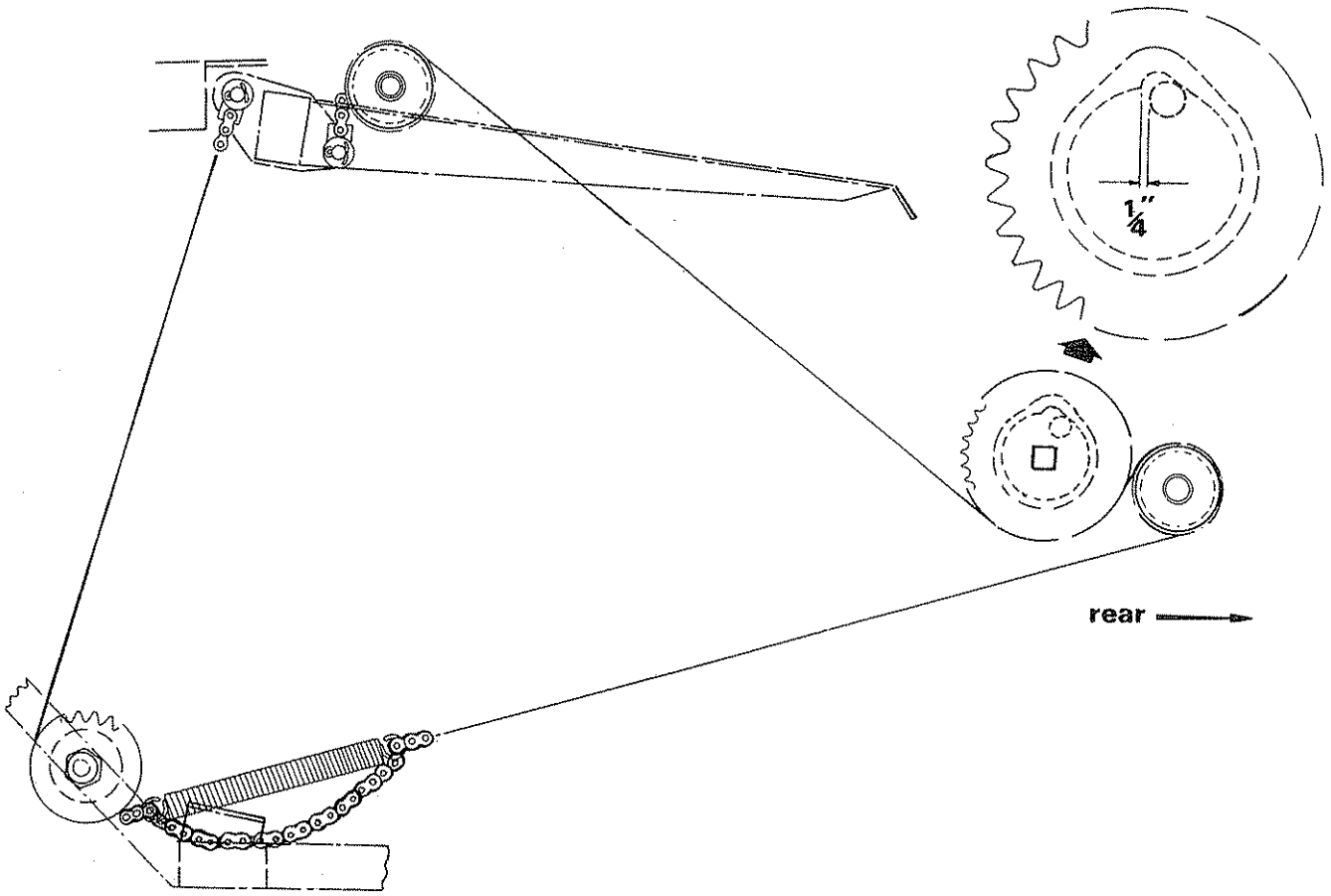
Important Note:

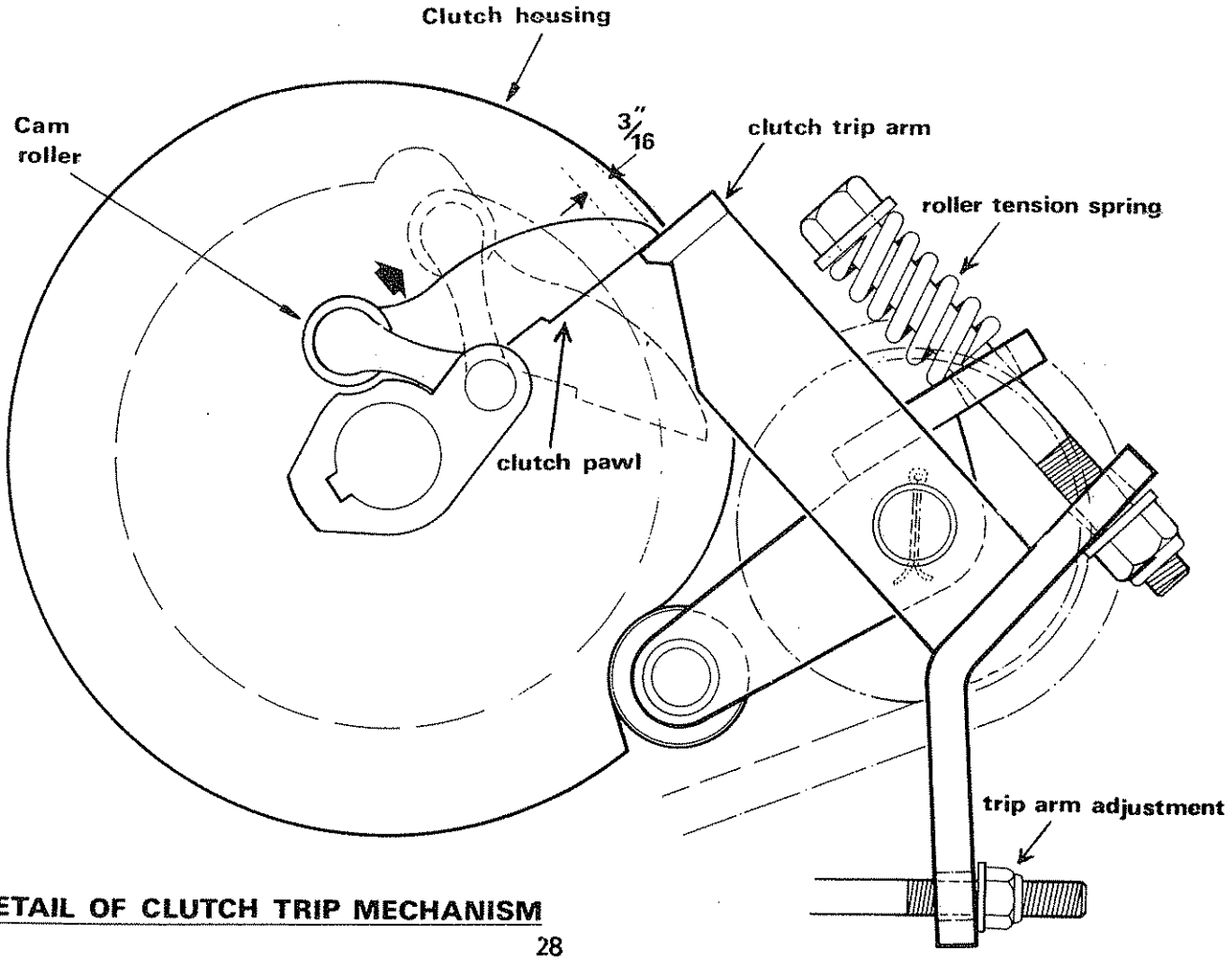
Unlike a baler the knotters are not synchronised. The knotter drive shaft has its keyways cut 95° out of alignment. This is done to stagger the load on the hydraulic system during the knotting cycle.

Baler knotters work at high speed and maintain momentum through the knotting cycle with the aid of the flywheel and the heavy lobe which is usually an integral part of the knotter drive gear. The knotters on the Balepacker do not have this momentum and so appear to work in an untidy jerky fashion.

If the knotting cycle appears to halt momentarily it is because the 'platform up' and 'pusher in' strokes have temporarily exhausted the accumulator. This is evidence that the tractor hydraulic system requires attention.

KNOTTER DRIVE





DETAIL OF CLUTCH TRIP MECHANISM

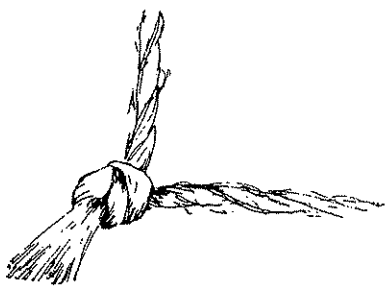
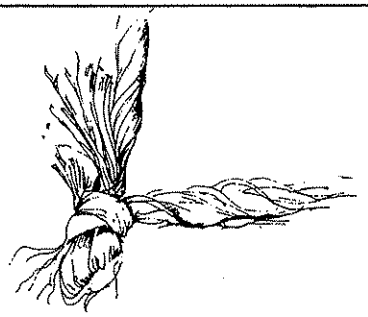
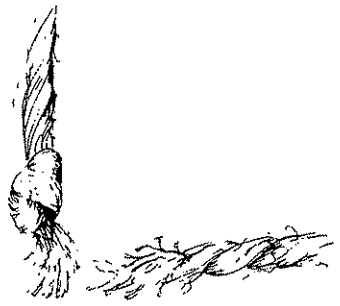
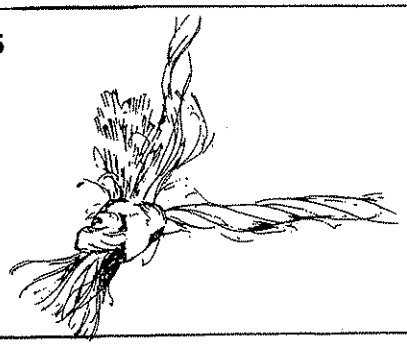
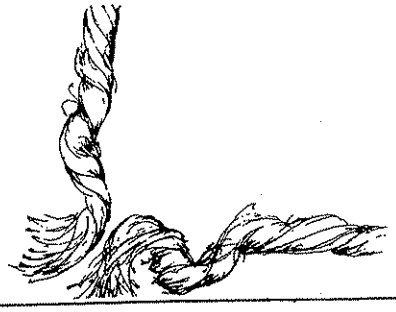
SECTION 4. FAULT FINDING.

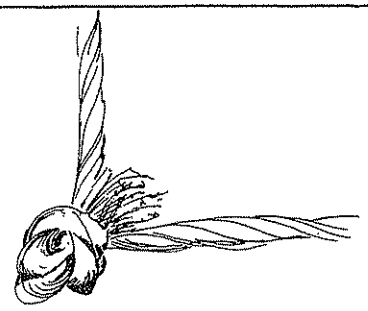
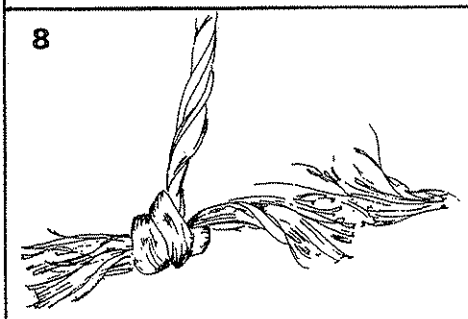
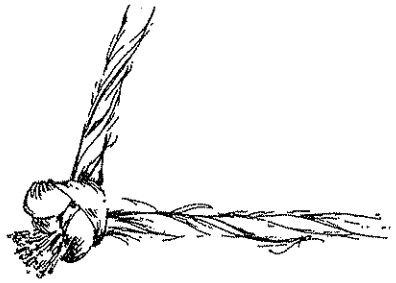
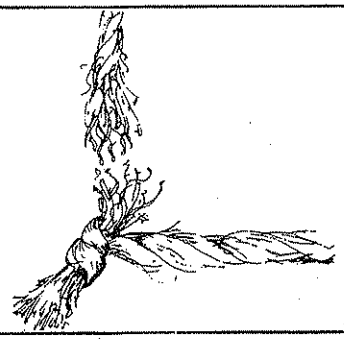
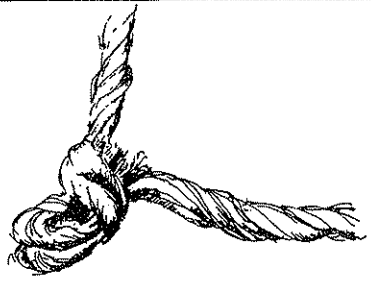
TROUBLE SHOOTING GUIDE

Fault	Cause and Remedy
1. Hydraulic system fails to pressurise.	a) Tractor external services selection incorrect. b) Self seal couplings not properly engaged. c) Unloader valve sticking.
2. Lack of power.	a) Check tractor hydraulic system. b) Check pressure gauge on Balepacker. At 2000 psi the tractor should be off load.
3. System pressurised but no movement of swing arm when bale strikes trigger.	a) Overcentre adjustment not properly set.
4. Swing arm rotates out of sequence when the machine is pressurised.	a) Trigger mechanism set too sensitive. b) Overcentre locking springs are suspect.
5. Bale does not strike the trigger arm.	a) Deflector plate not locked on the overcentre latch. Overcentre latch securing setscrew adjustment too fine.
6. Bale triggers the swing arm but is trapped against the deflector plate.	a) Incorrect adjustment of the threaded rod. Swing arm must release the overcentre latch when it has travelled 5" from its parked position.
7. Swing arm becomes trapped beneath bale.	a) Spring fingers of bale canopy need bending down a little.
8. Swing arm rotates but fails to return.	a) Bale trip plate lever seized. b) Sequence valve tappet not operated, check adjustment No 1. c) Deformed bale fails to strike trip plate.
9. Swing arm returns, but platform fails to raise.	a) Lift control valve needs adjustment.
10. Swing arm and platform collide.	a) Re-adjust lift control valve. b) Seized lift control valve spindle. c) Swingarm linkage to lift control valve seized.
11. Bale is flung across corner of platform or stuck under the needle supports on the pusher.	a) Swing arm action too fast – screw in barrel restrictor in hydraulic line to swing arm.
12. Platform keeps raising bales but pusher does not operate.	a) Counter hook fails to drop behind peg because of insufficient clearance of counterhook. b) Counter cam A is pulled round too far. c) Top striker plate incorrect. d) Broken or missing reverse pawl spring.

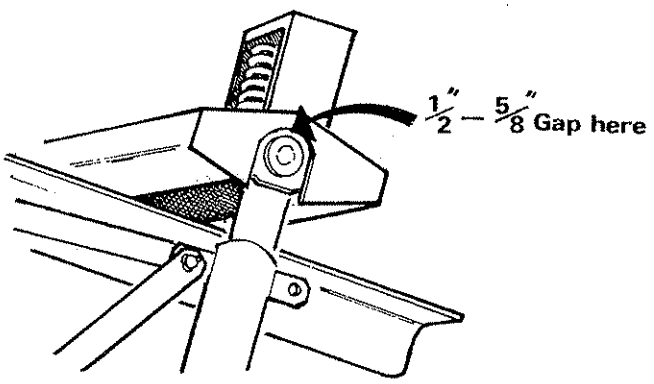
Fault	Cause and Remedy
13. Platform does not lower	a) Provided that tappet No. 2 has not been altered, the lower striker plate is incorrect. Raise plate by approximately 1/8".
14. Apparent loss of power when platform raises bales.	a) Too little clearance between pusher and pack– adjust bale dimension stop. b) Tractor oil level low.
15. Apparent loss of power on the pusher in stroke.	a) Side gate adjustment too tight. b) Top press too low.
16. Pusher in but platform fails to lower.	a) Check pusher is hard against abutment stop. b) Tappet 7 adjustment incorrect. Adjust to compress valve spindle 3/16". Make adjustment with pusher fully in and both pusher and platform tap closed.
17. Platform lowers but pusher fails to return.	a) Provided that tappet 4 has not been altered, the upper striker plate is incorrect. Lower plate by 1/8".
18. Failure to tie knot.	a) Knotter fails to operate due to incorrect clutch trip arm adjustment. Adjust to give 3/16" engagement with clutch pawl. b) Incorrect adjustment of fixed link. c) Knotter operates but fails to tie knot, see knotter trouble chart.
19. Platform stops during downward travel on the knotter stroke.	a) If intermittent stoppage, suspect low oil flow. Check oil level. b) Knotter drive jammed.
20. Slack twine around the pack.	a) Insufficient pressure on top press and side gates. b) Insufficient twine tension.
21. Bale keeps falling down onto the platform forks and retripping mechanism.	a) Too much clearance between pusher and pack – adjust bale dimension stop. b) Spring bale retainers not working properly – check for broken spring. c) Insufficient pressure on side gates.
22. Bale jammed beneath pusher.	a) Swing arm action too rapid – bale is bounced forward after striking trip plate. b) Anti-bounce flaps not working – broken or slipped spring; more noticeable when working downhill.
23. Pusher stops before completing its full travel and platform drops.	a) Incorrect setting of tappet No. 7. b) Incorrect fixed link adjustment No.6.
24. Unloader valve 'chatters' or vibrates when platform is lifting.	a) Faulty accumulator – this is confirmed when ram has reached end of stroke the 'chatter' should stop.

KNOTTER TROUBLE SUMMARY CHART

1 	Normal knot.
2 	Insufficient tension on twine retainer disc. Twine has pulled out.
3 	Top twine slipped off billhook. (i) Ensure correct clearance between billhook tip and stripper arm saddle. ½"–5/8" clearance when at maximum stroke. (ii) Needle twine finger fails to pick up twine and carry it onto billhook. Check for bent finger and centralizing bale on platform. A rising bale can move the front string across to the right.
4 	Insufficient tension on twine retainer disc or excessive twine tension at the string box. Remedy: Always start by loosening off tension at the box before increasing tension on the twine retainer disc.
5 	Insufficient clearance between tip of billhook and underside of stripper arm, fretting the twine as it rotates. Stripper arm requires bending to increase clearance.
6 	Knot tied but an accumulation of rubbish has caused it to turn inside out as the pack is released and the twine comes under tension.

7 	(i) Needle enters knotter too far, supplying too much twine. Remedy: (a) Reposition knotter by turning eccentric sleeve. (b) Re-adjust needle. (ii) Insufficient twine tension – increase tension at box.
8 	Sharp edge on groove of stripper arm. Loose countersunk screws on stripper support arm.
9 	Tails of knot too short – knot can turn inside out when pack is released and the twine comes under tension. Cause: Twine retainer disc too tight. Slacken tension at box as well.
10 	Blunt knife. Remove and sharpen.
11 	Knot correctly tied but pulled very tight and broken by twine sliding down the side of the twine finger on the needle as the knot is stripped off the billhook. Check the centralizing of the bale on the forks. A rising bale can move across under the influence of the chamfered corner of sidegate, carrying the twine with it.
12 	Insufficient billhook tension gives a looped knot – can have the same results as No. 11.

FAULT FINDING : The Completed Pack

PROBLEM	CAUSE & REMEDY
1. Excessive gap in bottom of pack between bale columns.	Gap not detrimental. Varies with crop and bale density. 1. Make bales less dense by adjustment of baler. 2. High forward speed allows the first column of bales when leaving the rear slides to tug at the twine which cuts into the corner bales of the pack. Reduce forward speed, make larger windrows and travel in lower gear. 3. Move domes on slides to rearmost position.
2. Twine very slack around the pack.	Usually caused by pushing the pack along the ground and closing the gap when picking it up with a gripper. 1. Leave gap in the pack by picking it up when stationary. Note: A pack with a wider base transports better, and makes a firmer stack. 2. Insufficient pressure from the top press. Rear press should exert greater pressure than the front one. Will vary with crop and weather conditions. Note: One ton of force is applied when the rear jack anchor pin has been depressed 1/2" - 5/8" in the cross member.  3. Insufficient twine tension. Increase tension at twine box. Adjust to a pull of approx. 6 pounds to draw the twine through the needle eye.

FAULT FINDING : The Completed Pack (continued)

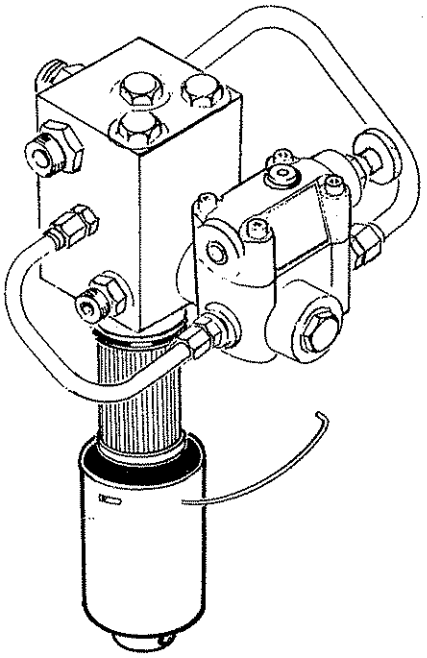
PROBLEM	CAUSE & REMEDY
3. Difficulty in discharging pack. Pusher slows down/ apparent loss of power on pusher stroke.	Very green and dense material. Early season crop with applied chemical additives causes:- 1. Excessive friction on pack chamber and rear slides. Reduce friction by installing optional roller kit to rear slides - (see appendix).
4. Pack is tied but strings are cut as the emerging pack hits the ground. More apparent on stoney and flint soils.	1. Reduce forward speed. 2. Install roller kit in rear slides. 3. Extra wide bales can cause the first column of bales to be dragging the ground before the complete pack has been discharged from the chamber. Move the adjustable domes to the rearmost position so that the pack is carried longer.
5. Twine slips off corners of pack. Twine not equally spaced from bale ends.	1. Bales too short/adjust baler. 2. Bale centralizing adjustment incorrect, pack not being formed centrally in the chamber.

SECTION 5. MAINTENANCE

Machine maintenance has been reduced to a minimum but the following points should be followed.

Lubrication. Grease all pivot points daily and in particular remember that the knotter mechanism only operates a small number of times in relation to the baler knotters so these should be greased sparingly.

Please note that there are six greasers on the knotter mechanism.



The full flow, high pressure filter of 10 micron rating is situated at the base of the manifold valve assembly and should be changed after 25 hours and thereafter every season.

Place a shifting bar through the hole in the base of the filter bowl and rotate bowl to expose tail end of the retainer wire through the slot in the side. Counter rotate to wind wire out of groove and pull down bowl to reveal filter element which is held in place by an internal '0' ring.

Accumulator

The accumulator stores hydraulic oil to maintain working pressure which is required by the machine. It exhausts itself automatically when the oil flow or tractor engine is stopped.
Positively no maintenance or any kind of adjustment should be attempted on the accumulator. It is precharged with pure Nitrogen to 1000 psi. Should the accumulator fail it should be returned to the factory for a replacement.

Wheels

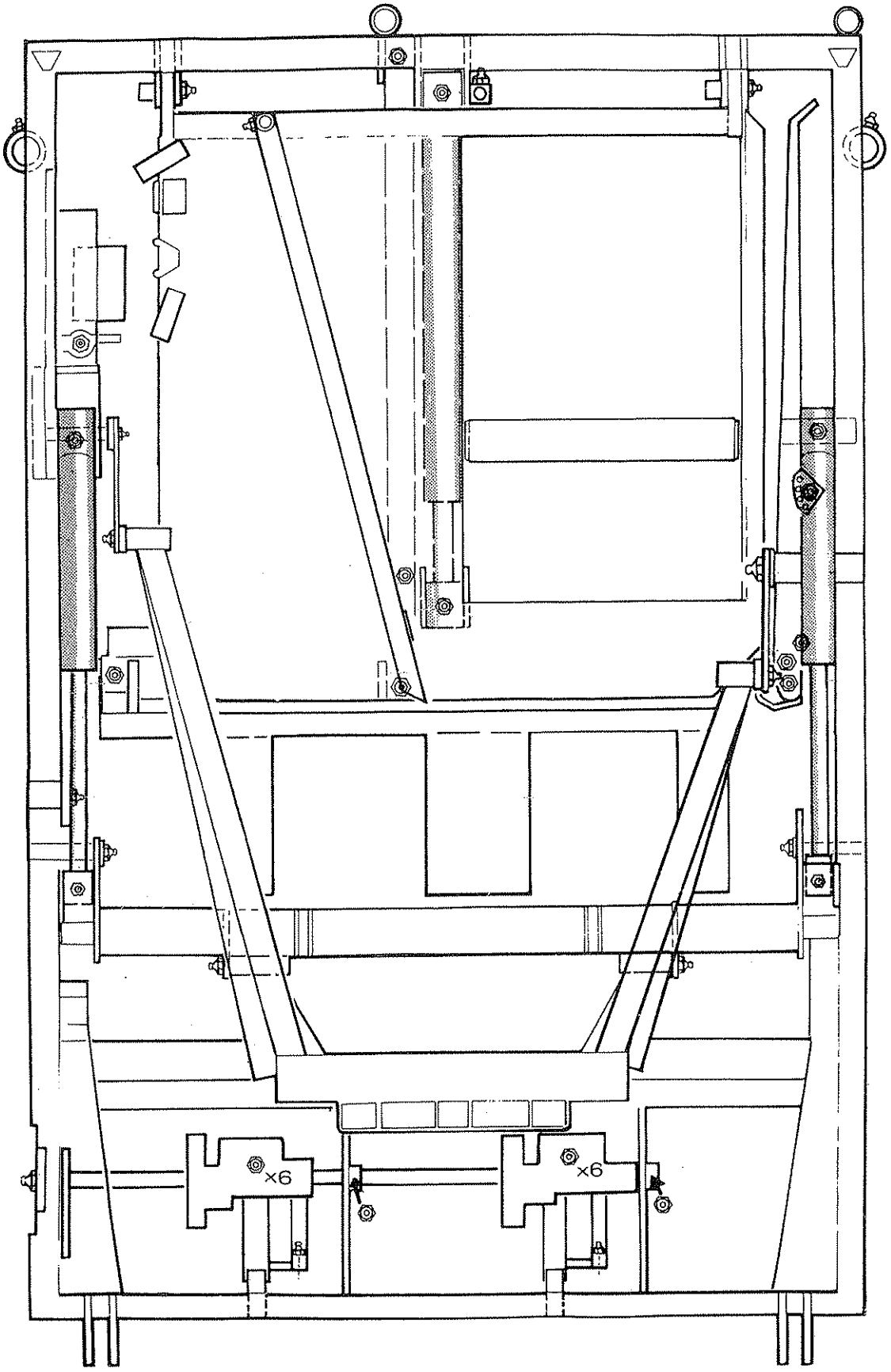
Tyre pressures should be maintained to 35 psi on all wheels.
Routine maintenance should include regular checking of all nuts and bolts for tightness - particular attention should be paid to the baler tow bar bolts and wheel nuts.

Storage

The Balepacker should be emptied of hay or straw and cleaned down. Grease and lubricate all pivot points and bushes. Apply a coating of grease to the bright surfaces of the knotters also grease or paint the bright worn surfaces of the platform and bale chamber.
Any part used packs of twine should be removed and stored in a cool dry place.
Tyres should be inflated to their correct pressure, the machine placed under cover and if possible supported on blocks to take the weight off the tyres and wheel bearings.

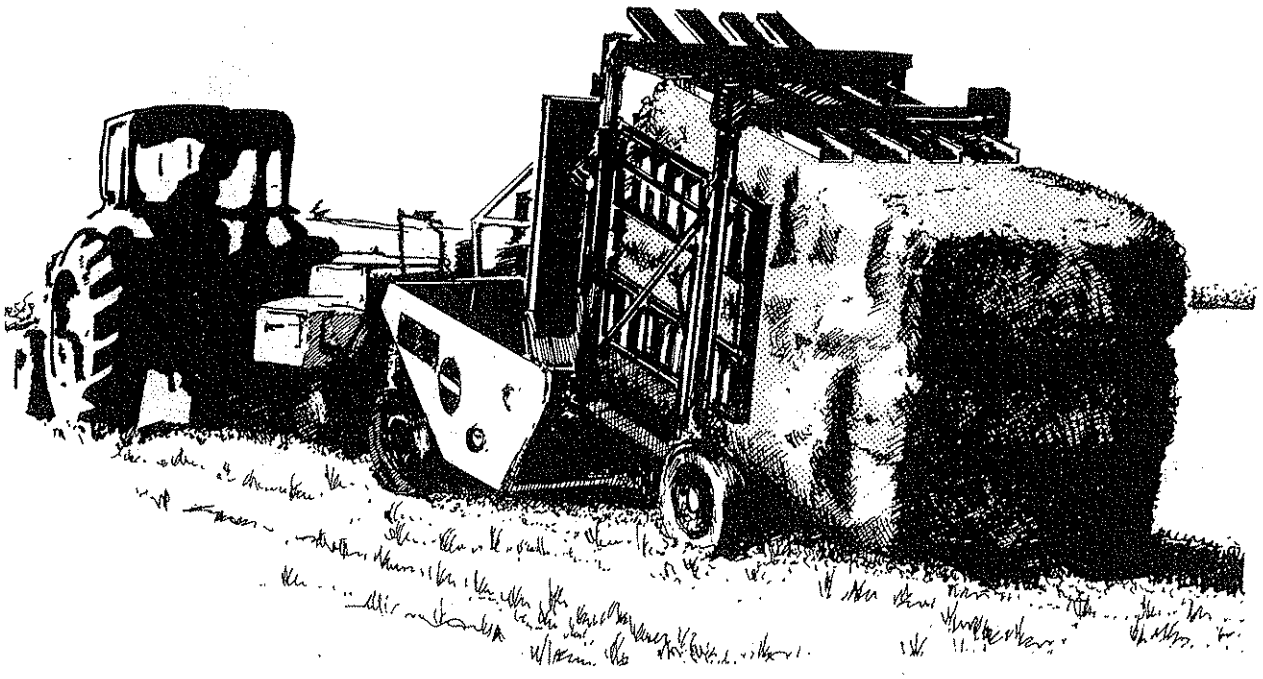
GREASER LOCATIONS

GREASE DAILY



Spare Parts Section

BALEPACKER



USE ONLY McCONNEL SPARE PARTS

To be assured of the latest design improvements purchase your genuine replacements from the original equipment manufacturer F.W.McConnel Ltd. through your local dealer or stockist.

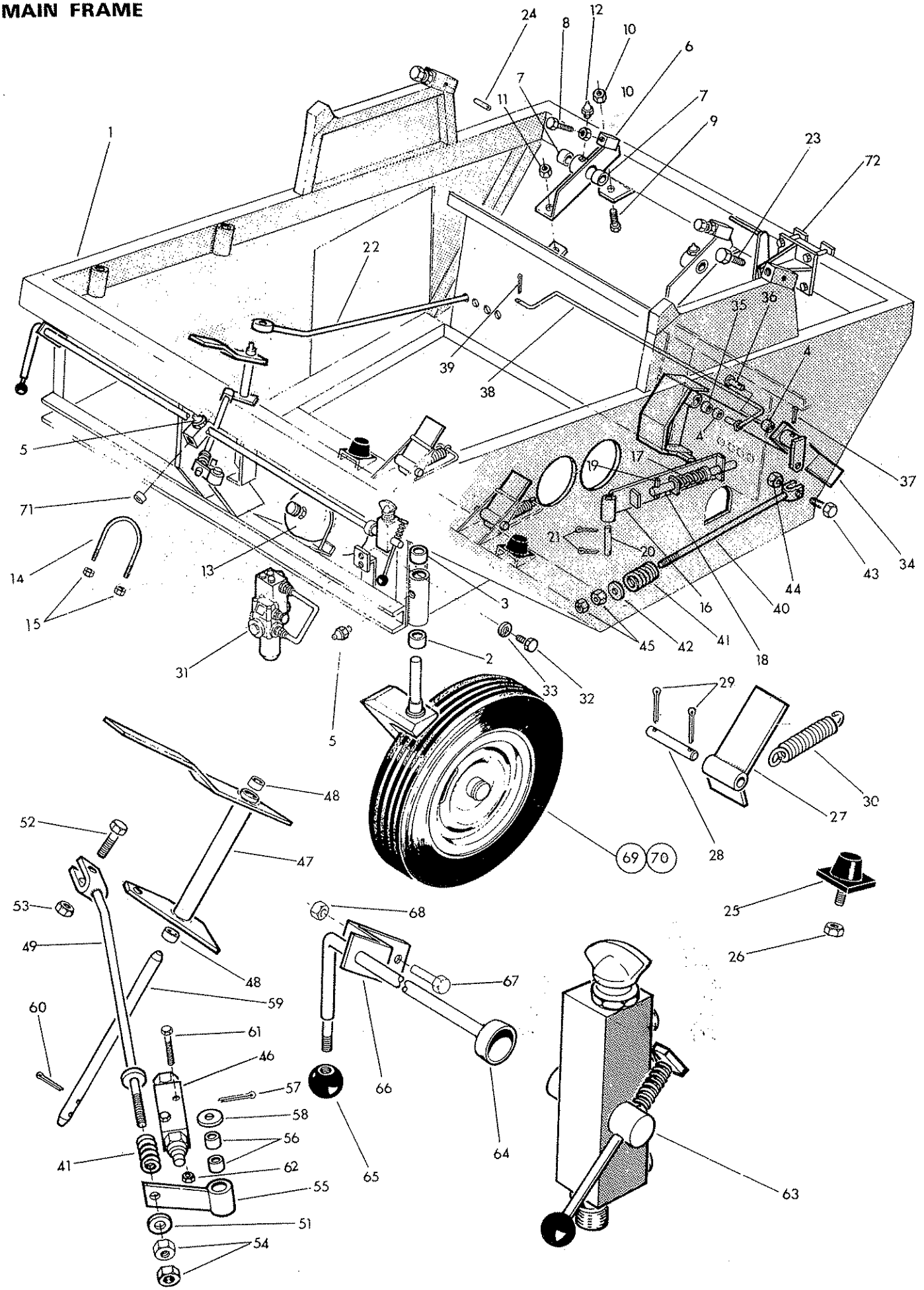
Always quote machine type and serial number as well as the part number.

Design improvement may have altered some of the parts listed in this manual - the latest part will always be supplied when it is interchangeable with an earlier one.

THE DOT SYSTEM

Many spares are supplied as Assemblies or as Sub-assemblies and, to help the customer determine the composition of an Assembly, the Dot System is used. The Main Assembly will not show a dot preceding its description and is printed in BLOCK CAPITALS. Subsequent listed parts are preceded by one or more dots until the next major assembly is reached. An increase in the number of preceding dots indicates that the item is an associated part of the preceding item. Whenever the number of dots are decreased by one this indicates the termination of an assembly.

MAIN FRAME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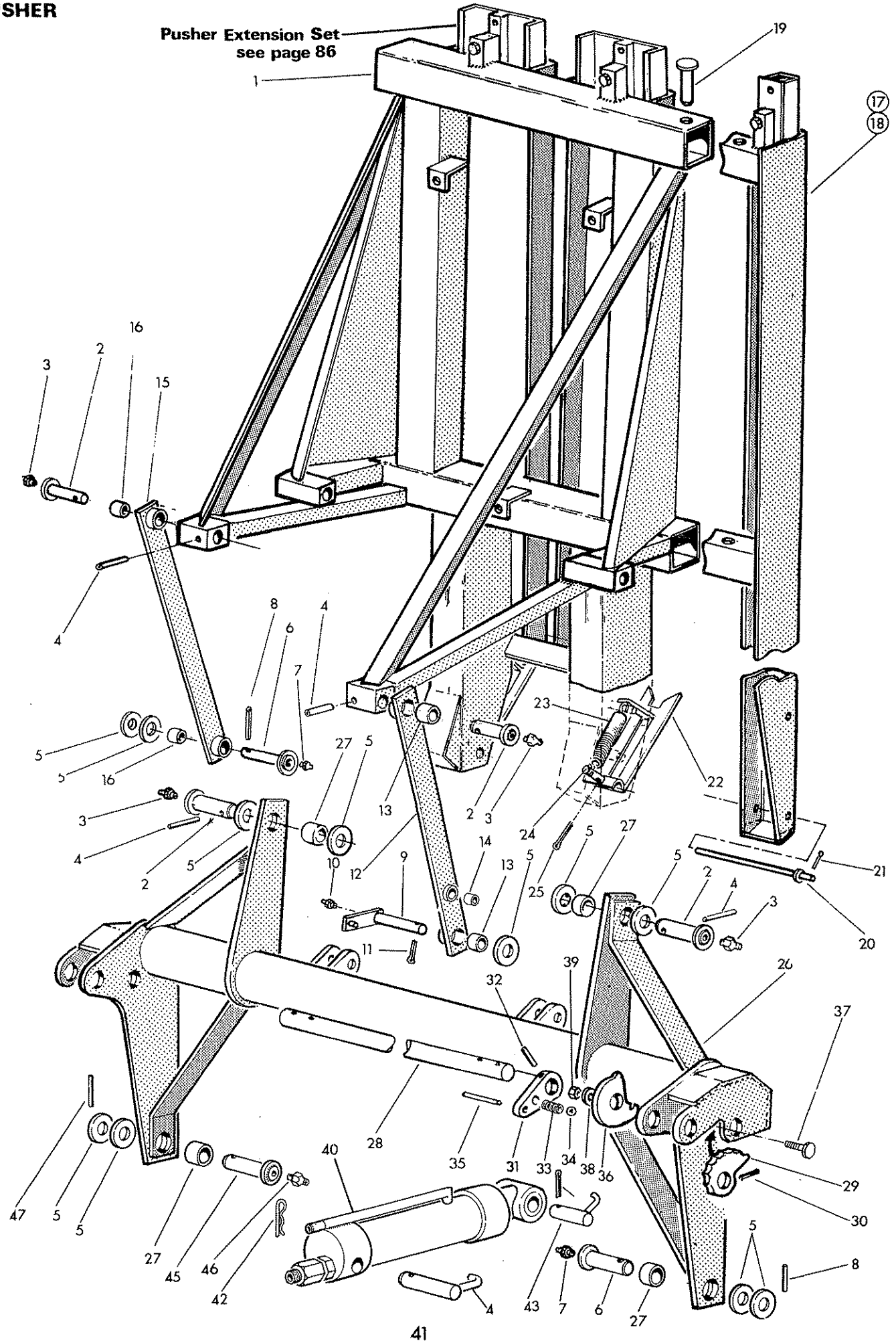
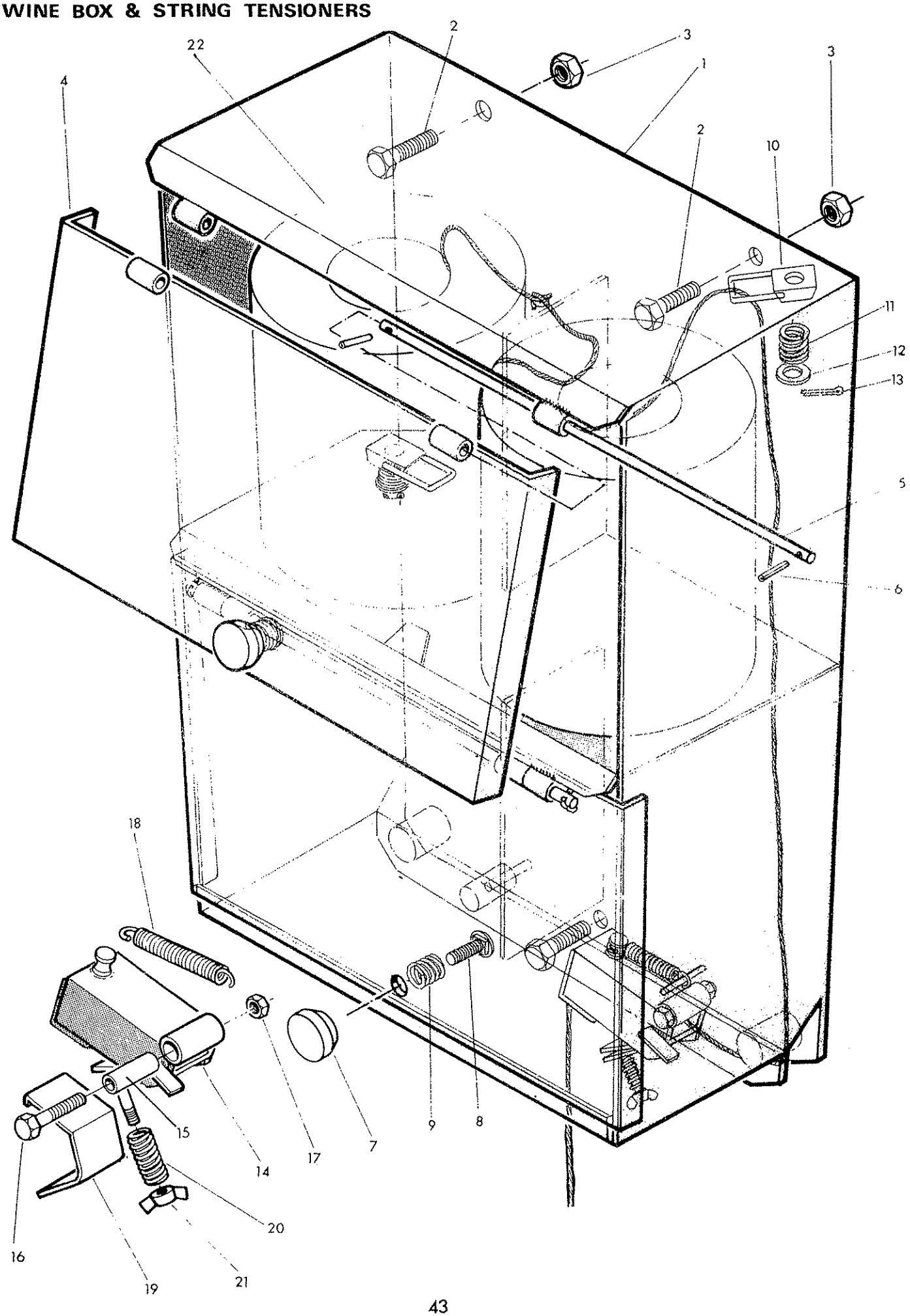
Ref	Part No	Qty	Description
	13 39 290	1	MAIN FRAME ASSEMBLY comprising:-
1	13 39 255	1	.Main frame welded assembly
2	13 37 042	2	..Bush 2" inside diameter
3	71 05 011	2	..Bush 1¾" inside diameter
4	13 38 253	2	..Bush 5/8" inside diameter
5	09 01 121	3	..Greaser - straight
6	13 39 256	2	..Knotter shaft support c/w bushes
7	13 35 230	2	...Bush
8	03 11 125	1	...Screw ½ UNF x 1½ long
9	03 11 105	2	...Screw ½ UNF x 1¼ long
10	01 11 005	1	...Plain nut ½ UNF
11	01 41 005	2	... Aeronut ½ UNF
12	09 01 121	1	... Greaser - straight
13	13 35 961	1	.Accumulator
14	13 35 158	1	.Accumulator strap c/w nut
15	01 41 003	2	.Aeronut 3/8" UNF
16	13 35 483	1	.Bale guide arm - left hand
17	13 38 263	1	.Spring
18	13 37 213	1	.Locking pin c/w spring dowel
19	04 22 532	1	..Spring dowel 5/16" dia. x 2" long
20	13 37 212	1	.Pivot pin c/w split pin
21	05 03 125	2	..Split pin 3/16" dia. x 1½" long
22	13 35 298	1	.Bale guide bar right hand
23	13 35 155	2	.Pusher adjuster bolt
24	04 41 632	2	.Spirol pin 3/16" dia. x 2" long
25	13 37 114	2	.Rubber buffer c/w aeronut
26	01 41 003	1	..Aeronut 3/8" UNF
27	13 35 263	2	.Anti-bounce flap c/w pin and spring
28	13 35 159	1	..Pivot pin c/w split pin
29	05 03 083	2	...Split pin 1/8" dia. x 1" long
30	60 10 032	1	..Spring
31	81 27 500	1	.Manifold valve assembly c/w bolts
32	03 11 083	2	.Setscrew 3/8" UNF x 1" long
33	01 00 203	2	..Spring washer 3/8" diameter
34	13 38 010	1	.Bale trip assembly c/w bushes
35	13 38 253	1	..Bush 5/8" dia. x 5/8" long
36	13 38 331	1	..Pivot pin c/w split pin
37	05 03 145	1	...Split pin 3/16" dia. x 1¾" long
38	13 38 060	1	.Trip bar c/w split pin
39	05 03 095	1	..Split pin 3/16" dia. x 1.1/8" long
40	13 35 205	1	.Bale trip - pull rod c/w spring etc.
41	60 00 110	1	..Spring
42	01 00 103	1	..Plain washer 3/8" diameter
43	02 11 123	1	..Bolt 3/8" UNF x 1½" long
44	01 41 003	1	..Aeronut 3/8" UNF
45	01 11 003	2	..Plain nut 3/8" UNF
	13 35 382	1	.LIFT CONTROL VALVE GEAR c/w VALVE
46	81 27 352	1	..Lift control valve (see page 77)
47	13 35 381	1	..Control lever
48	13 38 253	2	...Bush 5/8" inside diameter
49	13 37 121	1	.Pull rod c/w spring etc.
50	60 01 217	1	..Spring
51	01 00 103	1	..Plain washer 3/8" diameter
52	02 11 123	1	..Bolt 3/8" UNF x 1½" long
53	01 41 003	1	..Aeronut 3/8" UNF
54	01 11 003	2	..Plain nut 3/8" UNF
55	13 37 117	1	..Operating lever c/w bushes
56	13 38 253	2	...Bush 5/8" inside diameter
57	05 03 095	1	..Split pin 3/16" x 1.1/8" long
58	01 00 106	1	..Plain washer 5/8" diameter
59	13 37 119	1	..Pivot pin c/w split pin
60	05 03 126	1	...Split pin ¼" diameter x 1½" long
61	02 11 181	2	..Bolt ¼" UNF x 2¼" long
62	01 41 001	2	..Aeronut ¼" UNF
	13 38 040	1	.Isolation valve and mounting assembly
63	81 27 403	1	..Tap and isolation valve assembly (see page 77)
64	13 38 038	1	..Cross shaft
65	09 03 112	1	...Knob - red
66	13 38 308	1	..Support bracket
67	03 11 083	2	...Bolt 3/8" UNF x 1" long
68	01 41 003	2	...Aeronut 3/8" UNF
69	13 35 396	1	.Front caster & wheel assy. RH. (see page 63)
70	13 35 397	1	.Front caster & wheel assy. LH. (see page 63)
71	60 01 216	2	.Bush
72	13 39 287	2	.Twine finger assy (see page 65)

PUSHER



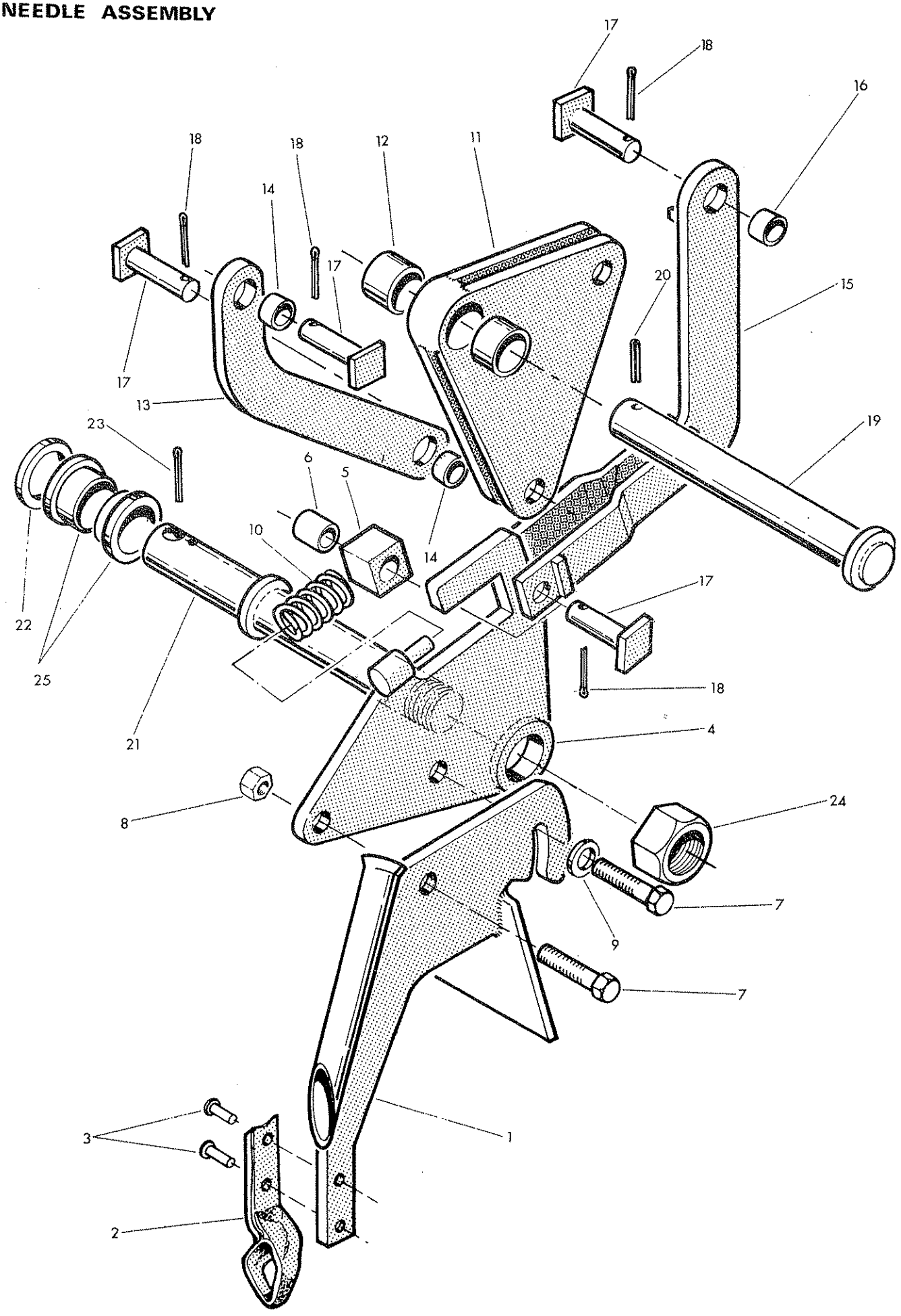
Ref	Part No	Qty	Description
		1	PUSHER ASSEMBLY
1	13 39 257	1	.Pusher plate welded assembly
2	13 38 333	4	..Pin - main and link arms to pusher
3	09 01 121	1	...Greaser - straight
4	04 22 624	1	...Roll pin 3/8" dia. x 1½" long
5	01 00 109	11	.Packing washer
6	13 38 251	2	.Pin - main arm and o/side link arm to frame
7	09 01 121	1	..Greaser - straight
8	04 22 624	1	..Roll pin 3/8" diameter x 1½"
9	13 38 327	1	.Pin - n/side link arm to frame
10	09 01 121	1	..Greaser - straight
11	05 03 125	1	..Split pin 3/16" dia. x 1½ long
12	13 35 301	1	.Link arm - n/side c/w bushes
13	13 37 224	2	..Steel bush 1" diameter
14	13 38 253	1	..Bush 5/8" diameter
15	13 38 433	1	.Link arm - o/side c/w bushes
16	13 37 224	2	..Steel bush 1" diameter
17	13 38 047	1	.Adjusting side rail - left hand) complete with pins.
18	13 38 048	1	.Adjusting side rail - right hand)
19	60 00 039	2	..Headed pin
20	13 38 315	2	..Pin c/w split pin
21	05 03 084	1	...Split pin 3/16" diameter x 1" long
22	13 35 479	2	.Pusher flap c/w pin and spring
23	60 01 064	1	..Spring
24	13 37 203	1	..Pin c/w split pin
25	05 03 123	1	...Split pin 1/8" dia. x 1½ long
26	13 35 468	1	.Main arm assembly c/w bushes
27	13 37 224	4	..Steel bush 1" inside diameter
28	13 38 312	1	.Cross shaft - main arm
29	13 38 313	2	.Cam stop c/w spring dowel
30	04 22 632	1	..Spring dowel 3/8" x 2" long
31	13 38 314	1	.Selector lever c/w ball and spring
32	04 22 628	1	..Spring dowel 3/8" x 1¾" long
33	13 38 355	1	..Spring
34	09 05 116	1	..Ball ½" diameter
35	04 22 616	1	..Spring dowel 3/8" x 1" long
36	13 38 046	1	.Pusher adjuster cam
37	03 12 105	1	.Bolt ½" x 1¼" long
38	01 00 105	1	.Plain washer ½" diameter
39	01 41 005	1	.Aeronut ½ UNF
40	13 38 093	2	.Pusher ram (see page 80).
41	13 35 041	2	.Pin - ram base
42	04 31 105	2	..Spring cotter
43	13 35 061	2	.Pin - ram rod
44	04 31 105	1	..Spring cotter
45	13 39 093	1	.Pusher mounting pivot pin R.Hand
46	09 01 121	1	.Greaser
47	04 22 624	1	.Roll pin 3/8" diameter x 1½"

TWINE BOX & STRING TENSIONERS



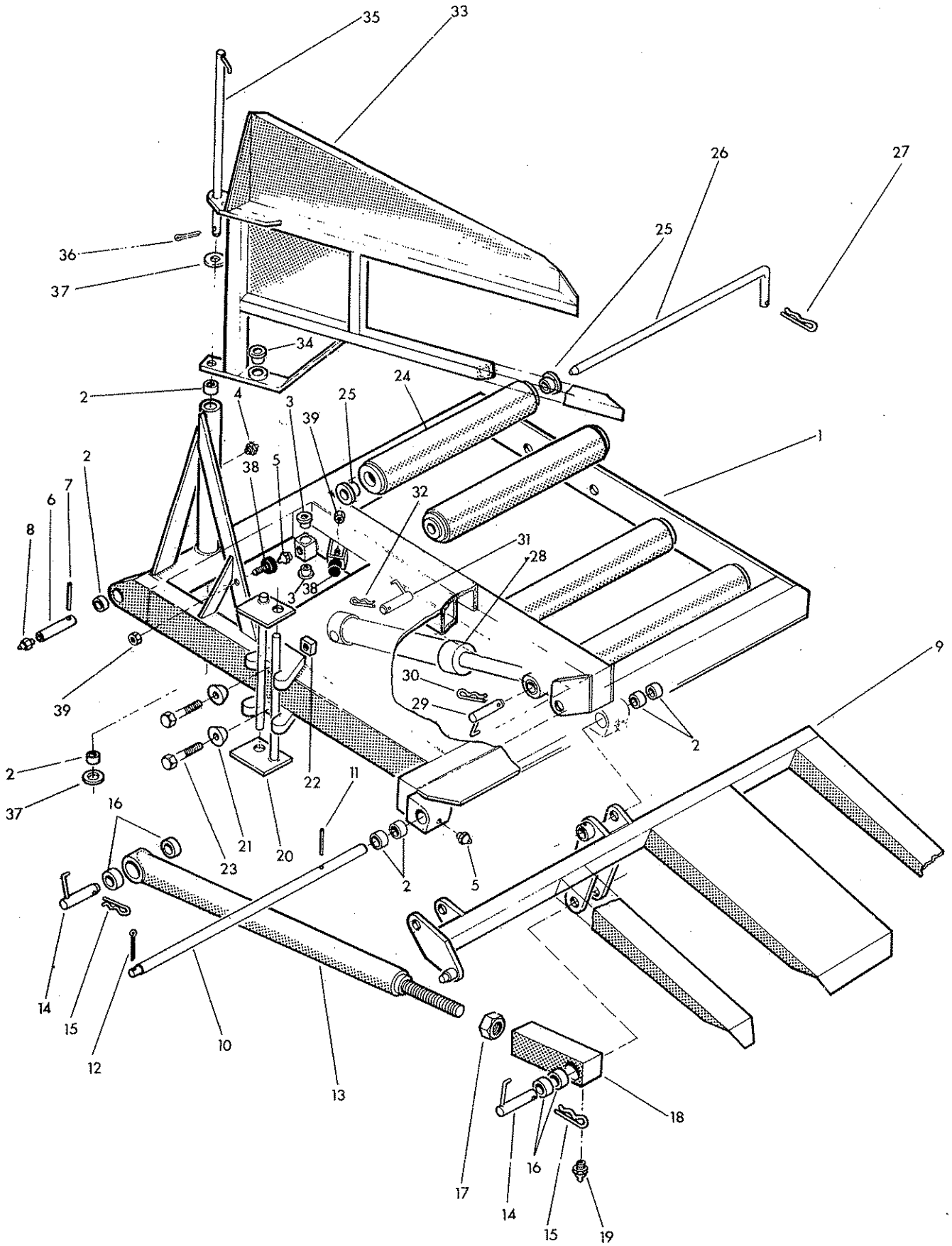
Ref	Part No.	Qty	Description
	13 39 277	1	STRING BOX ASSEMBLY c/w tensioners
1	13 39 278	1	.String box welded assembly c/w nuts & bolts
2	03 11 083	3	..Screw 3/8" UNF x 1" long
3	01 41 003	3	..Aeronut 3/8" UNF
4	13 39 284	2	.String box door c/w pin
5	13 39 071	1	..Pin c/w roll pin
6	04 20 808	2	...Roll pin 1/8" dia. x 1/2" long
7	13 39 070	1	..Catch knob
8	92 93 085	1	..Coach bolt 10 x 40
9	13 39 072	1	..Spring
10	13 35 141	1	.String staple
11	81 14 024	1	..Spring
12	01 00 603	1	..Washer 3/8" diameter
13	05 03 063	1	..Split pin 1/8" x 3/4"
	13 39 368	2	.String tensioner assembly
14	13 39 369	1	..Tensioner body
15	13 39 089	1	...Sleeve
16	02 11 223	1	..Bolt 3/8" UNF x 2¾" long
17	01 41 003	1	..Aeronut 3/8" UNF
18	60 01 155	1	..Spring
19	13 39 037	1	..Tongue piece
20	13 39 056	1	..Spring
21	01 92 003	1	..Wing nut 3/8" UNC
22	13 35 316	1	.Twine pack - 2 balls

NEEDLE ASSEMBLY



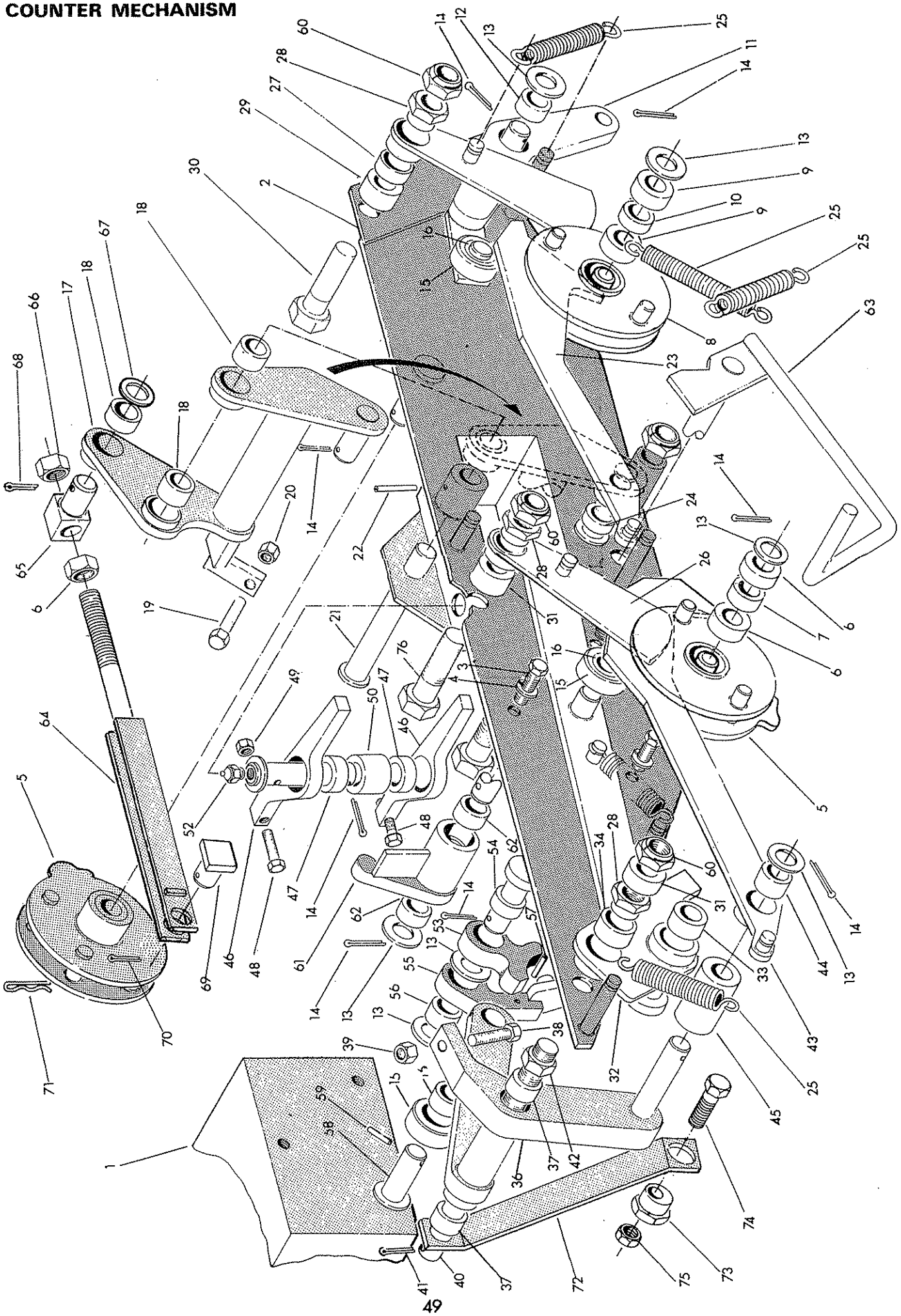
Ref	Part No.	Qty	Description
			NEEDLE ASSEMBLY c/w needle
1	13 38 007	1	.Needle c/w needle eye & rivets
2	13 35 243	1	..Needle Eye
3	13 35 134	2	..Countersunk Rivet
4	13 38 129	2	.Needle carrier c/w bushes
5	13 38 438	1	.Pivot block c/w bushes
6	13 38 253	1	..Bush 5/8" inside diameter
7	03 11 105	2	..Setscrew ½"UNF x 1¼"
8	01 31 005	2	..Plain nut - ½"UNF
9	01 00 105	1	..Plain washer ½" diameter
10	60 00 110	1	..Spring
11	13 38 009	2	.Bellcrank c/w bush
12	71 01 083	2	..Bush 1" inside diameter x 1" long
13	13 38 256	2	.Needle link - c/w bushes
14	13 38 253	2	..Bush 5/8" inside diameter
15	13 38 041	2	.Forked needle link c/w bush
16	13 38 253	1	..Bush 5/8" inside diameter
17	13 38 254	8	.Square headed pin c/w split pin
18	05 03 095	1	..Split pin 3/16" dia. x 1.1/8" long
19	13 38 255	2	.Headed pin - bell crank
20	04 22 624	1	..Spring cotter 3/8" x 1½" long
21	13 38 262	2	.Needle pivot pin c/w split pin
22	01 00 109	1	..1" plain washer
23	05 03 125	1	..Split pin 3/16" diameter x 1½"
24	01 31 009	2	..1" UNF Plain nut - thin
25	71 02 173	4	.1" diameter headed bush

LIFT & ROLLER PLATFORM



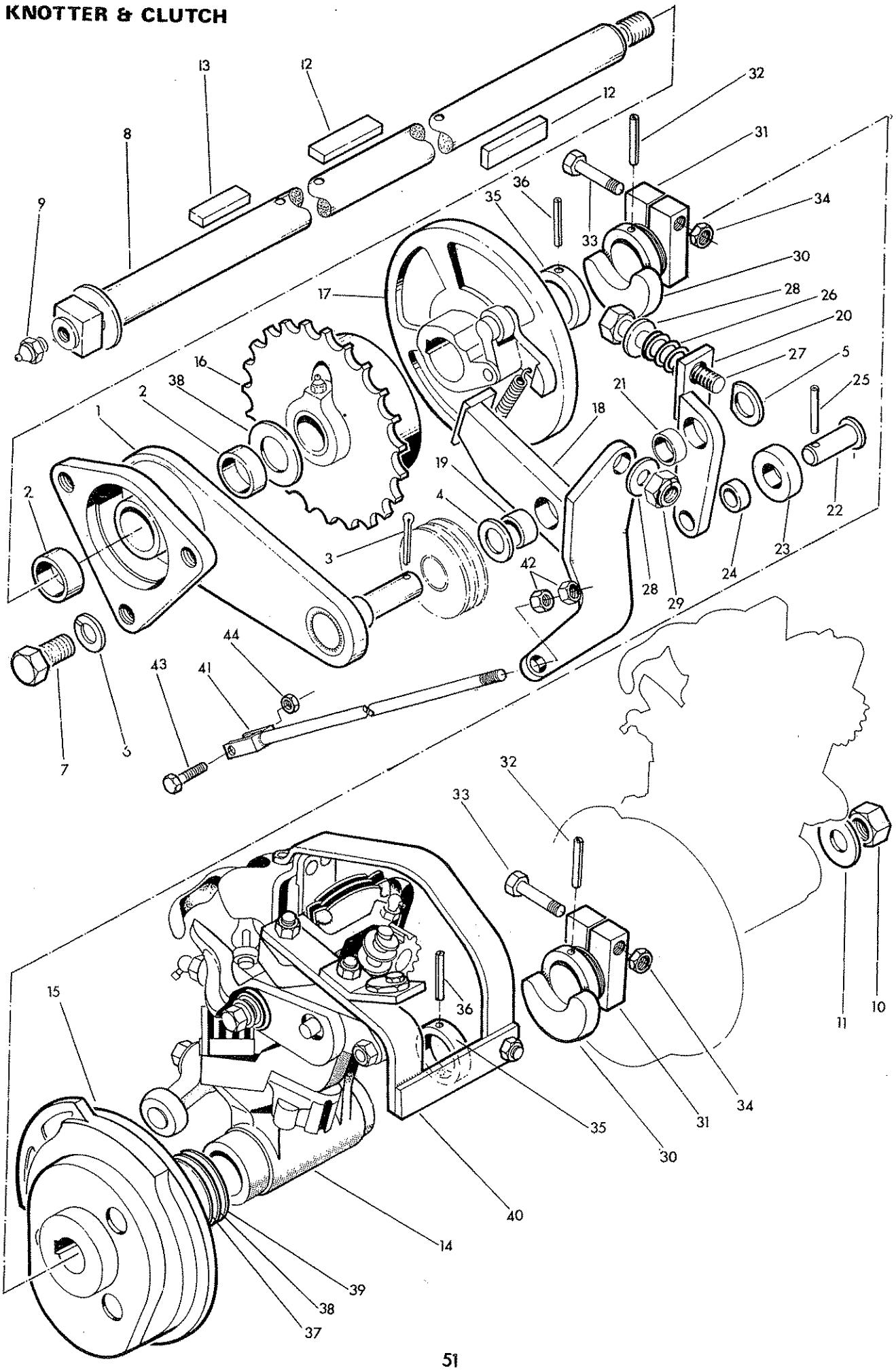
Ref	Part No.	Qty	Description
	13 39 269	1	ASSEMBLY OF LIFT & ROLLER PLATFORM
1	13 39 270	1	.Lift platform W/Assembly
2	13 37 224	8	..Bush 1" I/D steel
3	71 02 173	2	..Head bush 1" I/D
4	09 01 121	1	..Greaser - straight
5	09 01 125	3	..Greaser - 45^{O}
6	13 35 085	2	.Pin c/w spring dowel & greaser
7	04 22 624	1	..Spring dowel 3/8" dia. x 1½"
8	09 01 124	1	..Greaser 1/8" BSP x 67½ degree
9	13 39 285	1	.Fork platform
10	13 35 059	1	.Pin c/w spring dowel
11	04 22 624	1	..Spring dowel 3/8" x 1½" long
12	05 03 104	1	..Split pin 5/32" dia. x 1¼" long
13	13 35 060	1	.Parallel motion link c/w bushes
14	13 35 061	2	..Pivot pin c/w spring cotter
15	04 31 105	1	...Spring cotter
16	13 37 224	4	..Bush - 1" I/D
17	01 16 009	1	..Nut 1" UNC
18	13 37 014	1	..Tapped block
19	09 01 121	2	..Greaser
	13 35 326	1	.Assembly actuator plates c/w clamp
20	13 35 167	2	..Striker plate
21	13 35 168	2	..Clamping washer
22	13 35 169	2	..Special locknut
23	02 11 203	2	..Bolt 3/8" UNF x 2½" long
24	13 35 287	4	.Roller c/w bush
25	13 35 231	2	..Headed bush
26	13 35 071	4	..Roller pin c/w spring cotter
27	04 31 105	1	..Spring cotter
28	13 35 435	1	.Assembly lift ram - see separate page 79
29	13 35 061	1	.Pivot pin c/w spring cotter
30	04 31 105	1	..Spring cotter
31	13 35 041	1	.Pivot pin c/w spring cotter
32	04 31 105	1	..Spring cotter
33	13 39 274	1	.Deflector plate welded assembly
34	71 02 173	1	.Headed bush 1" I/D
35	13 39 055	1	..Pivot pin c/w spring cotter
36	05 03 125	1	...Split pin 3/16" dia. x 1½" long
37	01 00 109	2	...Plain washer 1" diameter.
38	71 03 046	2	.Rubber buffer c/w aeronut
39	91 00 012	1	..Aeronut - M10

COUNTER MECHANISM



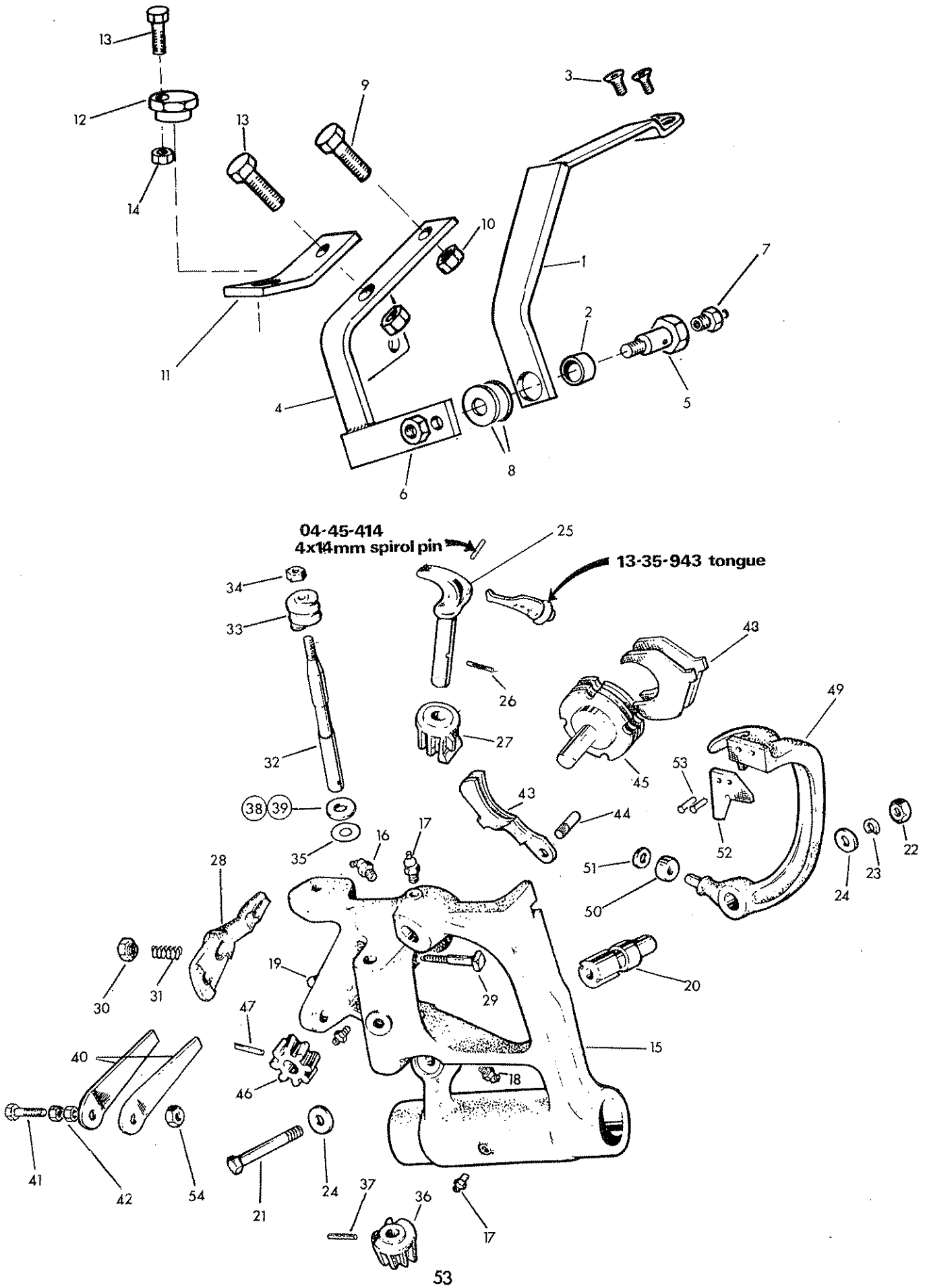
Ref	Part No	Qty	Description
	13 35 500	1	COUNTER MECHANISM c/w SEQUENCE VALVE
1	81 27 250	1	Sequence valve (see page 73).
	13 35 499	1	.Counter mechanism
2	13 35 501	1	..Counter mounting plate
3	03 12 063	3	..Setscrew 3/8 UNC x ¾" long
4	01 00 203	3	..Spring washer 3/8" diameter.
5	13 35 484	2	..Counter cam - 4 pin c/w bushes
6	13 38 253	2	...Bush 5/8" I/D
7	13 37 209	1	...Spacer
8	13 35 485	1	..Counter cam - 5 pin c/w bushes
9	13 38 253	2	...Bush 5/8" I/D
10	13 37 209	1	...Spacer
11	13 35 175	1	..Cam follower c/w bush
12	13 38 253	1	...Bush 5/8" I/D
13	01 00 606	8	..Thin washer 5/8" I/D
14	05 03 103	8	..Split pin 1/8" dia. x 1¼" long
15	13 35 176	3	..Cam roller 1¼" diameter c/w bush
16	13 38 253	3	...Bush 5/8" I/D
17	13 35 407	1	..Trip arm c/w bush
18	13 38 253	3	...Bush 5/8" I/D
19	03 11 103	1	...Setscrew 3/8" UNF x 1¼" long
20	01 00 003	1	...Nut 3/8" UNF
21	13 35 177	1	..Trip arm pivot pin c/w spring dowel
22	04 21 516	1	...Spring dowel 5/32" diameter x 1" long
23	13 35 408	1	..Push counter hook c/w bush
24	13 38 253	1	...Bush 5/8" I/D
25	60 01 064	5	..Tension pin
26	13 35 178	2	..Counter pawl c/w bush
27	70 14 028	1	...Bush 7/8" I/D
28	13 35 179	3	..Spacer nut
29	13 35 180	1	..Spacer - short
30	02 11 246	2	..Bolt 5/8" UNF x 3" long
31	13 35 181	2	..Spacer - long
32	13 35 182	1	..Trip plate c/w bushes
33	70 14 028	1	...Bush 7/8" I/D
34	13 38 253	1	...Bush 5/8" I/D
35	13 35 409	1	..Pushrod
36	13 35 410	1	..Striker arm c/w bushes
37	13 38 253	2	...Bush 5/8" I/D
38	03 11 103	1	...Screw 3/8" UNF x 1¼" long
39	01 11 003	1	...Nut 3/8" UNF
40	13 38 410	1	..Platform trip pivot c/w split pin
41	05 03 105	1	...Split pin 3/16" dia. x 1¼" long
42	01 11 006	1	...Nut 5/8" UNF
43	13 35 411	1	..Lift counter hook c/w bush
44	13 38 253	1	...Bush 5/8" I/D
45	13 35 184	1	..Trip roller
46	13 35 185	2	..Valve rocker c/w bush and screw
47	13 38 253	1	...Bush 5/8" I/D
48	03 11 103	1	...Screw 3/8" UNF x 1¼" long
49	01 11 003	1	...Nut 3/8" UNF
50	13 35 186	1	..Rocker spacer
51	13 35 187	1	..Rocker pivot pin c/w greaser
52	09 01 121	1	...Greaser 1/8" BSP
53	13 35 188	1	..Bell crank c/w bush
54	13 38 253	1	..Bush 5/8" I/D
55	13 35 412	1	..Trip lever c/w bush and spring dowel
56	13 38 253	1	...Bush 5/8" I/D
57	04 20 820	1	...Spring dowel 1/8" dia. x 1¼" long
58	13 35 189	1	..Roller pivot c/w spring dowel
59	04 20 820	1	...Spring dowel 1/8" dia. x 1¼" long
60	01 51 006	4	..Thin aeronut 5/8" UNF
61	13 35 207	1	..Slave rocker c/w bush
62	13 38 253	2	...Bush 5/8" I/D
63	13 38 061	1	..Hand trip lever
64	13 35 335	1	..Pusher link stay
65	13 35 221	1	...Swivel block
66	01 11 006	2	...Plain nut 5/8" UNF
67	01 00 106	1	...Plain washer 5/8" diameter
68	05 03 104	1	...Split pin 5/32" dia. x 1¼" long
69	13 38 413	1	...Pin c/w split pin
70	05 03 095	1	....Split pin 3/16" dia. x 1.1/8" long
71	04 31 105	1	..Spring cotter
72	13 38 411	1	.Brace strip c/w eccentric and bolts
73	14 68 062	1	..Eccentric collar
74	03 11 103	1	..Setscrew 3/8" UNF x 1¼" long
75	01 41 003	1	..Aeronut 3/8" UNF
76	02 11 266	1	.Bolt 5/8" UNF x 3" long

KNOTTER & CLUTCH



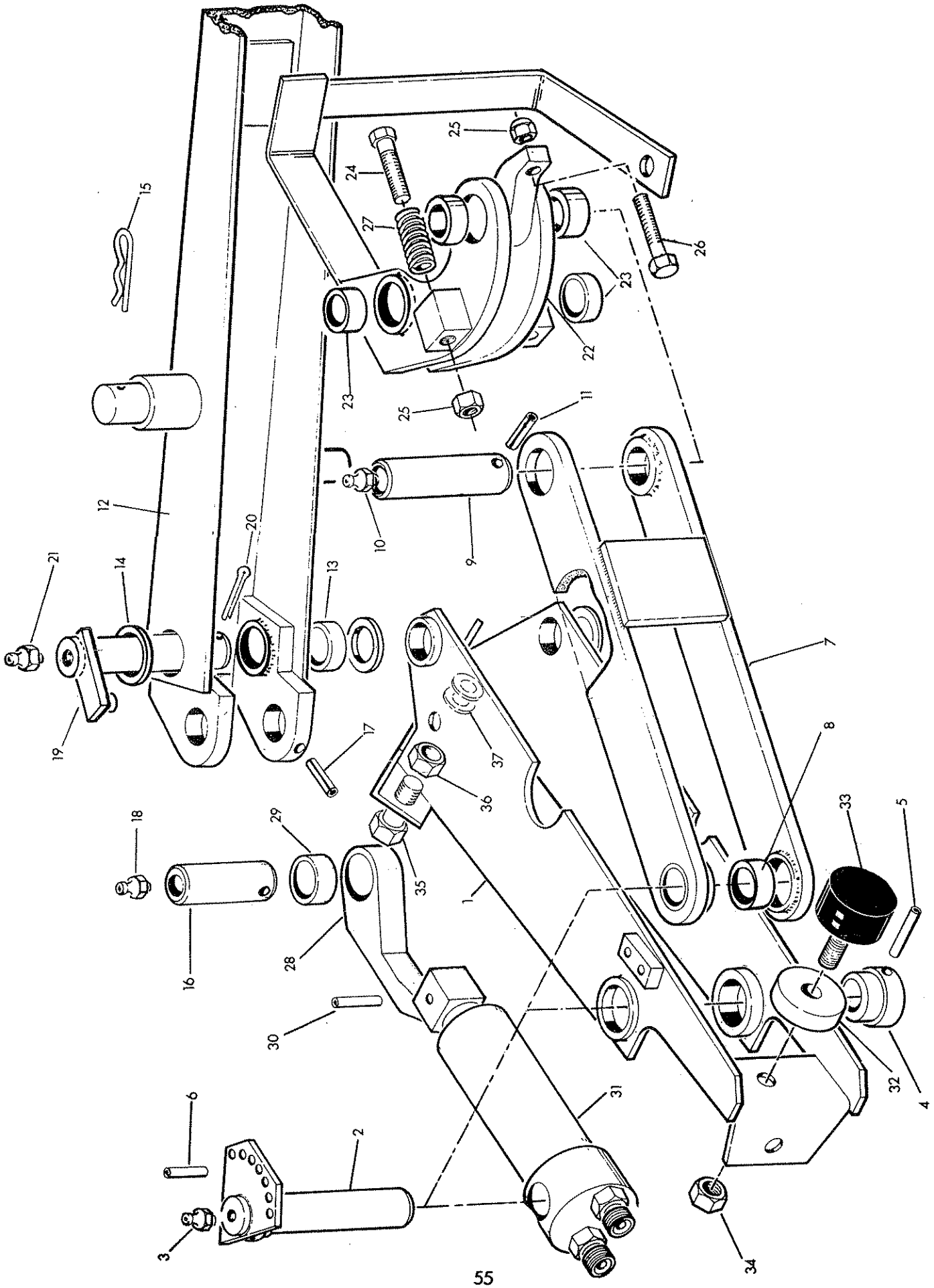
Ref	Part No.	Qty	Description
	13 38 096	1	KNOTTER AND CLUTCH ASSEMBLY
1	13 35 325	1	.Fixed clutch housing c/w bushes
2	13 35 230	2	..Bush 1.1/8" I/D x 3/8" long
3	05 03 105	1	..Split pin 3/16" diameter x 1¼" long
4	13 38 405	1	..Special washer
5	13 38 404	1	..'D' washer
6	01 00 206	3	..Spring washer 5/8" diameter
7	03 11 086	3	..Setscrew 5/8 UNF x 1" long
8	13 39 258	1	.Knotter shaft c/w greaser and keys
9	09 01 121	1	..Greaser 1/8" BSP
10	01 41 006	1	..Aeronut 5/8" UNF
11	13 38 387	1	..Collar
12	15 76 214	2	..Key 3/8" x 5/16" x 2¼" long
13	13 35 151	1	..Key 3/8" x 5/16" x 1¾" long
14	13 38 388	2	.Knotter assembly
15	13 38 036	2	.Cam gear
16	13 35 972	1	.Driving sprocket
17	13 35 969	1	.Rotating clutch housing
18	13 35 327	1	.Trip lever c/w bush
19	70 14 028	1	..Bush 7/8" I/D x ¾" long
20	13 35 195	1	.Roller lever c/w bush
21	70 14 028	1	..Bush 7/8" I/D x ¾" long
22	13 35 196	1	.Headed pin
23	13 35 197	1	..Roller c/w bush
24	13 38 253	1	...Bush 5/8" I/D
25	04 21 616	1	..Spring dowel 3/16 dia. x 1" long
26	73 15 075	1	.Spring
27	02 11 405	1	.Bolt ½ UNF x 5" long
28	01 00 105	2	.Washer ½" diameter
29	01 41 005	1	.Aeronut ½" UNF
–	13 39 024	2	.Knotter adjuster assembly
30	13 39 025	1	..Adjuster - male
31	13 39 026	1	..Adjuster - female
32	04 41 632	1	..Scroll pin 3/16" dia. x 2" long
33	02 11 203	1	..Bolt 3/8" UNF x 2½" long
34	01 41 003	1	..Aeronut 3/8" UNF
35	13 37 136	2	.Spacer
36	04 41 632	1	..Scroll pin 3/16" dia. x 2" long
37	13 37 020	As req'd	.Shim .010 thick
38	13 37 021	"	.Shim 21 S.W.G.
39	13 37 022	"	.Shim 16 S.W.G.
40	13 38 098	2	.Stripper arm support assembly
41	13 35 204	1	.Pull rod c/w nut and bolt
42	01 11 003	2	..Plain nut 3/8" UNF
43	02 11 123	1	..Bolt 3/8" UNF x 1½" long
44	01 41 003	1	..Aeronut 3/8" UNF

KNOTTER ASSEMBLY



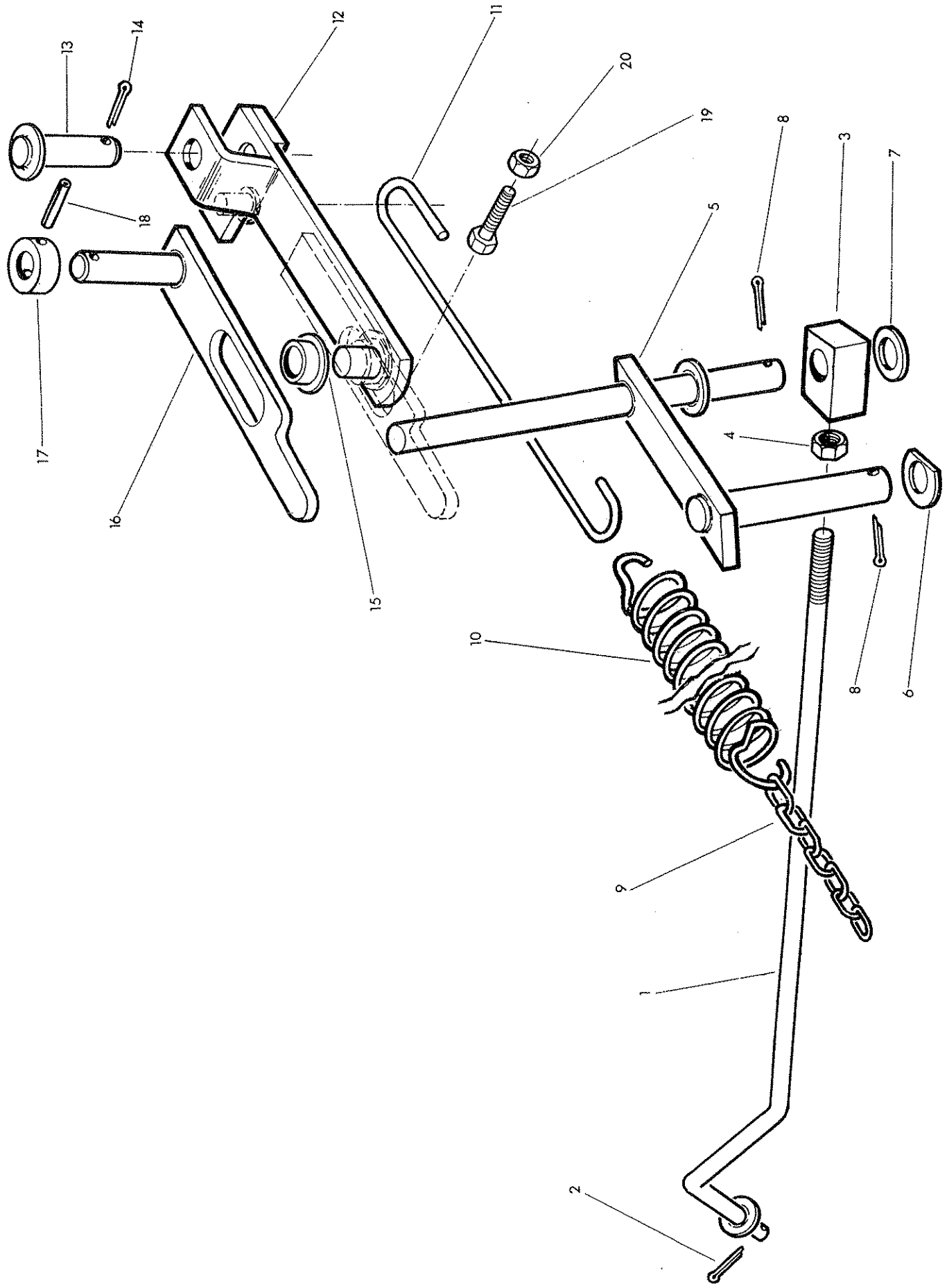
Ref	McConnel Part No.	Bamford Part No.	Qty	Description
	13 38 098	–	1	STRIPPER ARM SUPPORT ASSEMBLY
1	13 38 095	–	1	.Stripper support arm c/w bush
2	71 01 033	–	1	..Steel bush 5/8" I/D
3	03 51 041	–	2	..Countersunk socket setscrew ¼" UNF
4	13 38 094	–	1	.Pivot arm
5	13 38 385	–	1	.Pivot bolt c/w greaser & nut
6	01 41 003	–	1	..Aeronut 3/8" UNF
7	09 01 124	–	1	..Greaser 1/8" BSP
8	01 00 606	–	as req'd	..Thin washer 5/8" diameter
9	02 11 124	–	1	.Bolt 7/16" UNF x 1½" long
10	01 41 004	–	1	.Aeronut 7/16" UNF
11	13 38 434	–	1	.Knotter stay
12	14 68 062	–	1	..Eccentric collar
13	03 11 103	–	2	..Setscrew 3/8" UNF x 1¼" long
14	01 41 003	–	2	..Aeronut 3/8" UNF
	13 38 388	–		KNOTTER ASSEMBLY comprising:-
15	13 35 953	46528BS	1	.Knotter frame with locating pins
16	09 01 114	–	1	..Angular greaser ¼" BSF
17	09 01 111	–	3	..Straight greaser ¼" BSF
18	09 01 113	–	1	..Greaser 90° ¼" BSF
19	13 35 954	BL 1090	1	..Pin in knotter frame for cam
20	13 35 978	BL 1039	1	.Pivot shaft for stripper arm
21	02 12 243	–	1	.Bolt 3/8" UNC x 3" long
22	01 12 003	–	1	.Nut 3/8" UNC
23	01 00 203	–	1	.Spring washer 3/8" I/D
24	01 00 103	–	2	.Plain washer 3/8" I/D
25	13 39 027	–	1	.Billhook assembly c/w spring cotter
26	04 25 522	–	1	..Spring cotter 5 x 22
27	13 35 945	49731B1	1	.Bevel pinion billhook
28	13 35 984	B665	1	.Billhook cam
29	13 35 985	44599B1	1	.Cam adjuster bolt
30	01 12 002	–	1	.Nut 5/16" UNC
31	13 35 986	BL1071	1	.Cam spring
32	13 35 987	BL1081	1	.Worm shaft
33	13 35 988	BL1069	1	.Worm
34	01 11 003	–	1	.Nut 3/8" UNF
35	13 35 958	93456	as req'd	Shim .015" thick
36	13 35 946	49732B1	1	.Bevel pinion - worm
37	04 21 614	–	1	.Spring dowel 3/16" x 7/8" long
38	13 35 991	93454	as req'd	Shim 1/16" thick
39	13 35 992	93455	as req'd	Shim 1/32" thick
40	13 35 993	BL1073	2	.Leaf spring
41	03 12 163	–	1	.Setscrew 3/8" UNC x 2" long
42	01 12 003	–	2	.Nut 3/8" UNC
43	13 35 994	48276B2	1	.Twine retainer assembly
44	13 35 995	BL2303	1	.Locating pin
45	13 35 996	35147B2	1	.Twine disc complete
46	13 35 997	36076B1	1	.Pinion for twine disc
47	04 21 614	–	1	.Spring dowel 3/16" x 7/8" long
48	13 35 999	BL1034	2	.Cleaner for twine disc
49	13 35 957	B401	1	.Stripper arm c/w twine knife
50	13 35 959	BL1078	1	..Roller
51	13 35 960	93420	1	..Plain washer
52	13 35 976	BL1030	1	..Knife
53	13 38 389	–	2	..Round head rivet 3/16" x ½" long
54	01 42 003	–	1	.Aeronut 3/8" UNC

SWING ARM ASSEMBLY



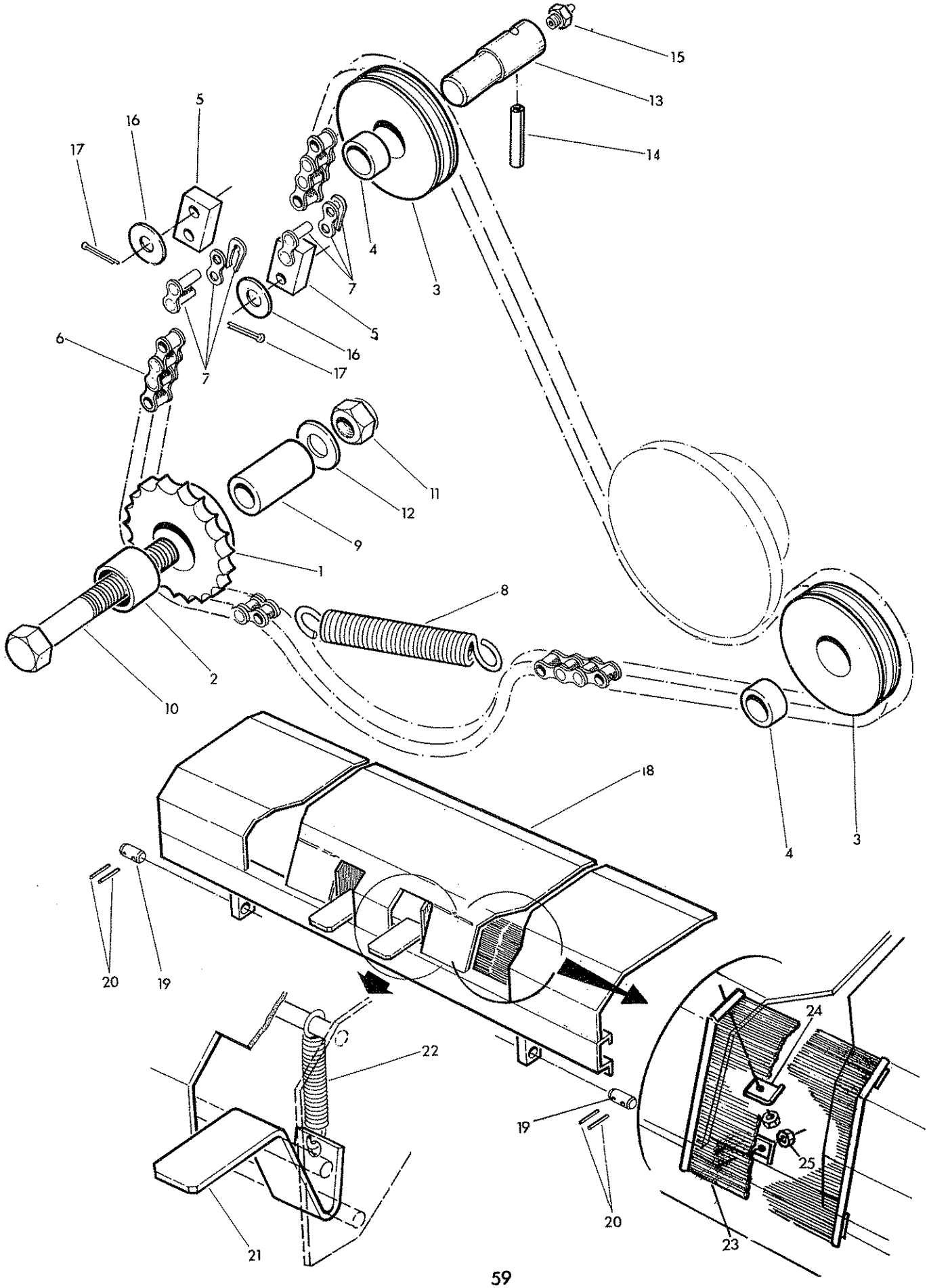
Ref	Part No	Qty	Description
	13 38 058	1	SWING ARM c/w RAM
1	13 35 317	1	.Swing arm housing
	13 35 087	1	.Ram base end pin c/w collars
2	13 35 088	1	..Pin c/w greaser
3	09 01 125	1	...Greaser 1/8" BSP x 35°
4	13 35 089	1	..Eccentric collar c/w dowel
5	04 22 632	1	...Spring dowel 3/8" dia. x 2"
6	04 22 620	1	..Spring dowel 3/8" x 1¼" long
7	13 38 050	1	.Main link assembly c/w bushes and pin
8	70 12 037	2	..Bush - steel ½" long
9	13 38 318	1	..Locking pin c/w greaser
10	09 01 121	1	...Greaser 1/8" BSP straight
11	04 21 624	1	...Spring dowel 3/16" dia. x 1½" long
12	13 35 321	1	.Swing arm c/w bushes and pins
13	13 37 224	2	..Bush - steel 1" long
14	72 12 006	2	..Plain washer 1¼" dia.
15	04 31 105	1	..Spring cotter
16	13 38 319	1	..Trigger link pin c/w greaser
17	04 22 628	1	...Spring dowel 3/8" dia. x 1¾" long
18	09 01 121	1	...Greaser 1/8" BSP straight
19	13 38 320	1	..Pivot pin c/w greaser
20	05 03 125	1	...Split pin 3/16" dia. x 1½" long
21	09 01 121	1	...Greaser 1/8" BSP straight
22	13 38 049	1	.Trigger link assembly c/w bushes etc.
23	70 12 037	4	..Bush steel - ½" long
24	02 11 223	2	..Bolt 3/8" UNF x 2¾" long
25	01 41 003	3	..Aeronut 3/8" UNF
26	03 11 103	1	..Setscrew 3/8" UNF x 1¼" long
27	60 01 207	2	..Spring
28	13 35 319	1	.Rod end c/w bush and spirol pin
29	13 37 224	1	..Bush - steel 1" long
30	04 42 824	1	..Spirol pin - ½" dia. x 1½" long
31	13 35 430	1	.Swing ram assembly (see page81)
32	13 35 095	1	.Stop boss
33	71 03 046	1	.Rubber buffer c/w aeronut
34	91 43 005	1	..Aeronut M10
35	02 11 166	2	.Bolt 5/8" UNF x 2" long
36	01 41 006	2	.Aeronut 5/8" UNF
37	01 00 106	as req'd	.Packing washer 5/8" dia.

INTERLOCK INSTALLATION



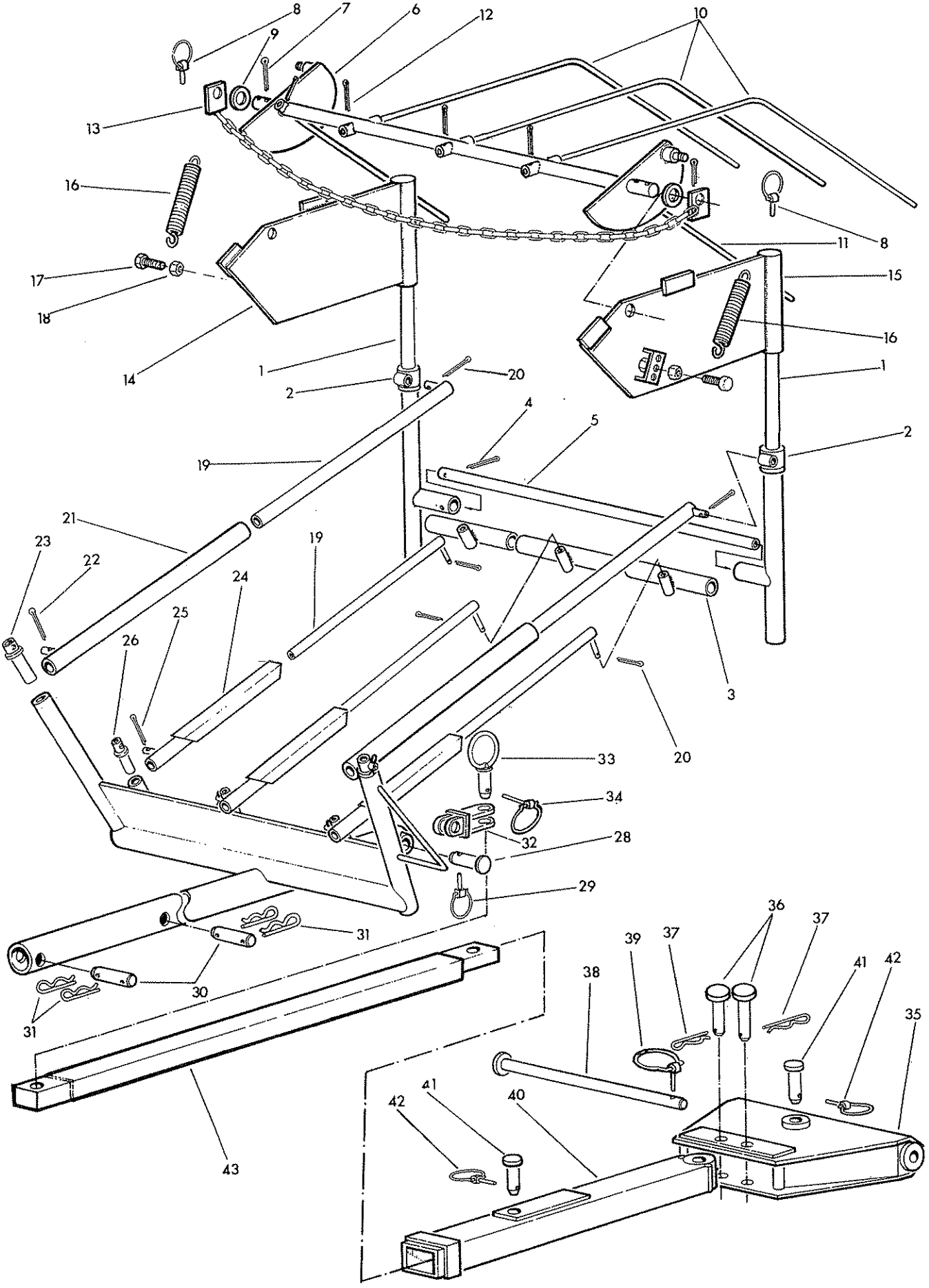
Ref	Part No.	Qty	Description
			SWING ARM/DEFLECTOR INTERLOCK INSTALLATION
1	13 39 276	1	.Pullrod c/w adjuster and locknut
2	05 03 095	1	..Split pin 3/16" dia. x 1.1/8" long
3	13 39 074	1	..Adjuster block
4	01 31 005	1	..Plain nut ½" UNF
5	13 39 298	1	.Latch release lever c/w washer and split pin
6	01 00 107	1	..¾" plain washer
7	01 00 106	1	..5/8" plain washer
8	05 03 095	2	..Split pin 3/16" dia. x 1.1/8" long
9	09 02 200	1	.Chain - 11 links
10	14 21 097	1	.Tension spring
11	13 39 062	1	.Spring link
12	13 39 063	1	.Toggle link c/w pin
13	13 39 086	1	..Pin c/w split pin
14	05 03 205	1	..Split pin 3/16" dia. x 2½" long
15	13 39 065	1	.Roller
16	13 39 100	1	.Toggle pin c/w collar
17	13 39 064	1	..Collar
18	04 21 624	1	..Spring dowel 3/16" dia.x 1½" long
19	03 11 163	1	.Screw 3/8" UNF x 2"
20	01 11 003	1	.Plain nut 3/8" UNF

CHAIN INSTALLATION



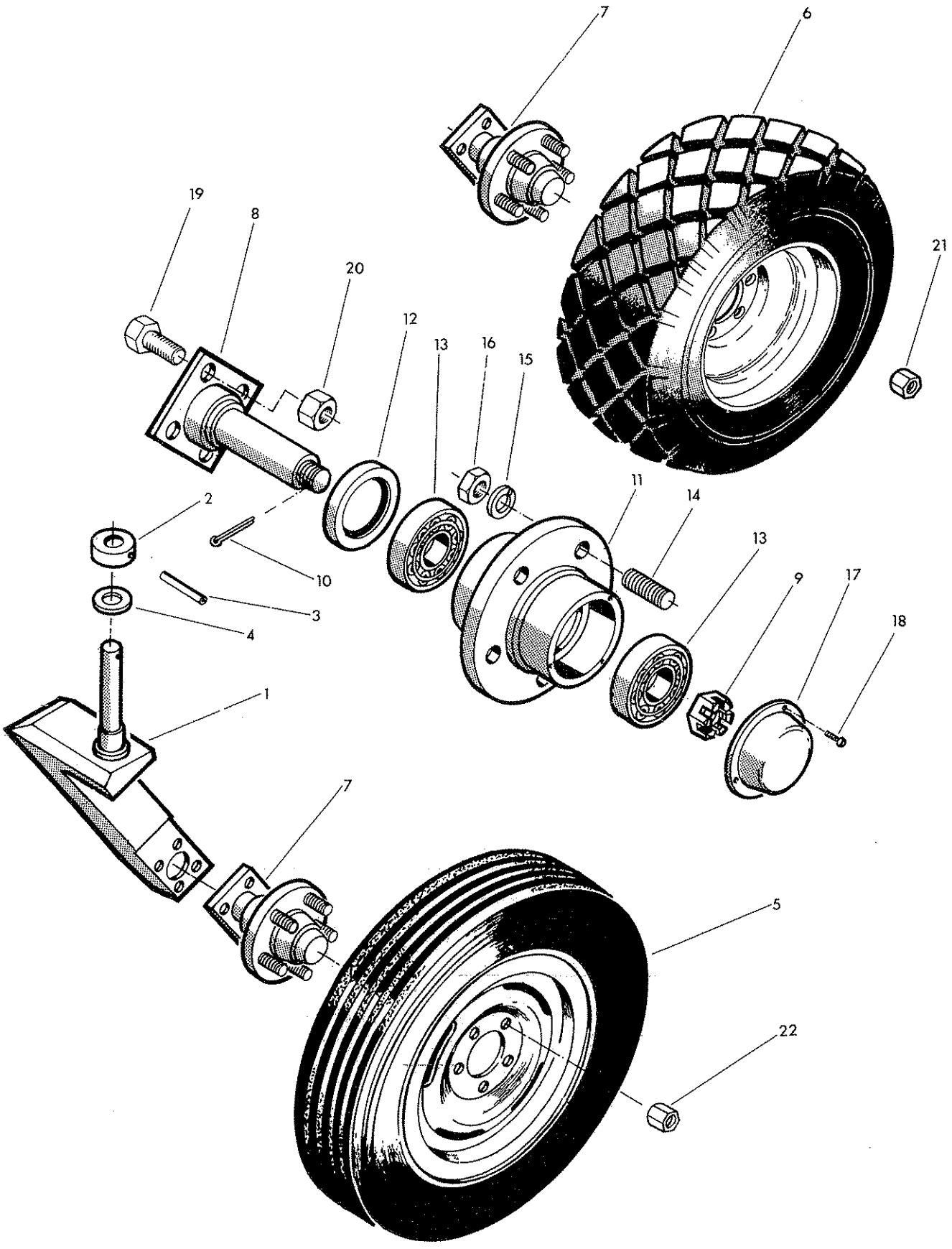
Ref	Part No.	Qty	Description
	13 35 339		CHAIN INSTALLATION comprising:-
1	13 35 018	1	.Guide sprocket c/w bush
2	71 01 083	1	..Bush 1" dia. x 1" long
3	13 35 084	2	.Guide pulley c/w bush
4	71 01 083	1	..Bush 1" dia.
5	13 35 157	2	.Chain block
6	13 37 040	1	.Chain 5/8" x 233 pitches c/w connectors
7	13 35 062	2	..Connecting link
8	60 10 032	1	.Spring
9	13 35 047	1	.Sprocket sleeve
10	02 11 486	1	.Bolt 5/8" UNF x 6" long
11	01 41 006	1	.Aeronut 5/8" UNF
12	01 00 106	1	.Washer 5/8" dia.
13	13 35 031	1	.Pivot pin c/w spring dowel and greaser
14	04 22 632	1	..Spring dowel
15	09 01 121	1	..Greaser 1/8" BSP
16	01 00 105	2	.Washer 1/2"
17	05 03 083	2	.Split pin 1/8" x 1"
	13 35 351		KNOTTER COVER ASSEMBLY comprising:-
18	13 39 303	1	.Knotter cover c/w pivot pins
19	13 35 122	2	..Pivot pin c/w split pin
20	05 03 083	4	...Split pin 1/8" x 1" long
21	13 35 307	2	.Flap
22	60 04 017	1	..Spring
	13 39 108	2	. Brushes L.H.
23	13 39 109	2	. Brushes R.H.
24	13 39 110	8	.Brush clamps
25	01 41 001	8	.Nuts

CHUTE; CANOPY & TOWBAR



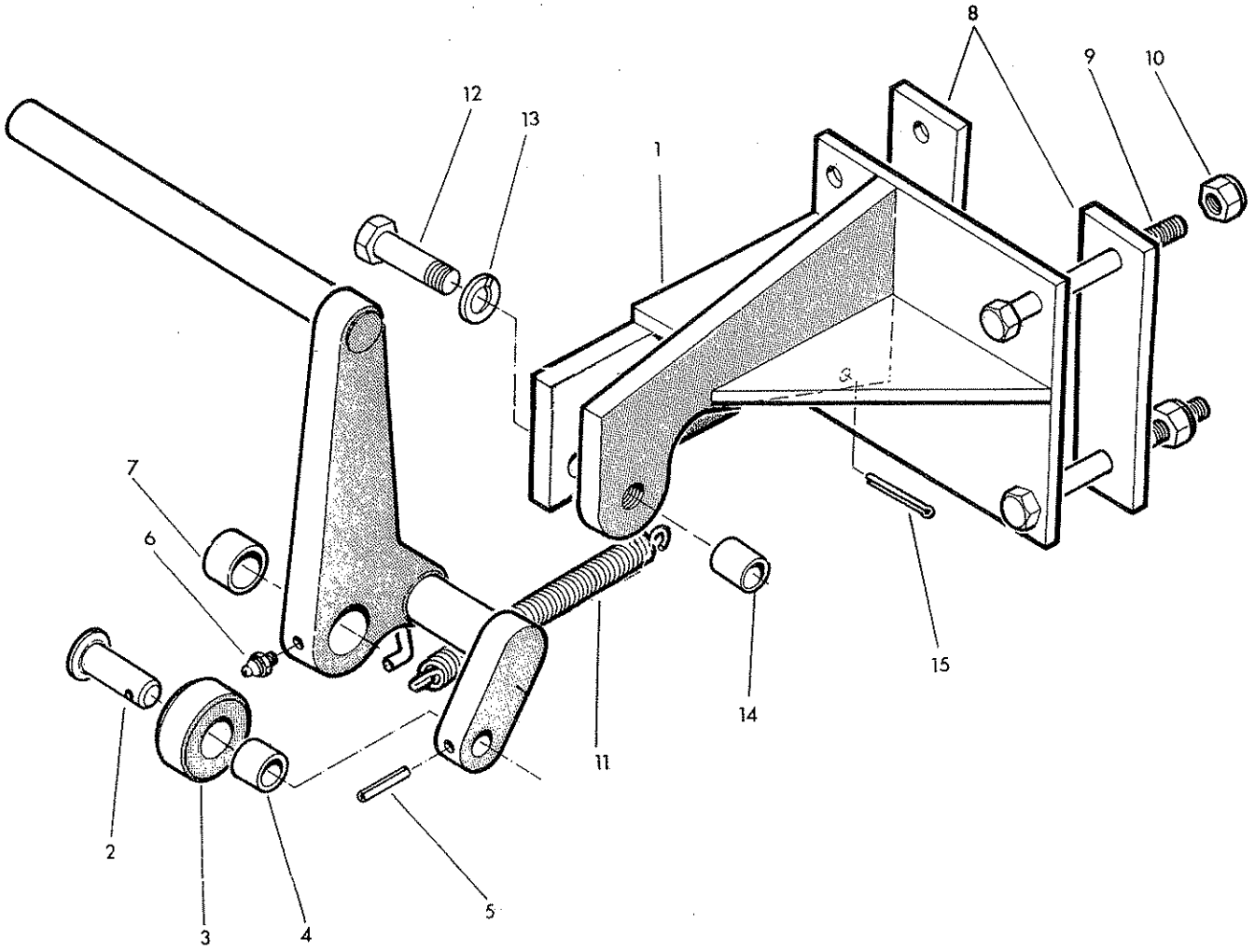
Ref	Part No	Qty	Description
	13 36 286	1	BALE CHUTE & CANOPY INSTALLATION
	13 36 254	1	.Canopy carrier assembly
1	13 36 282	2	..Vertical post
2	13 36 009	2	..Side rail pivot
3	13 36 011	3	..Runner pivot
4	05 03 205	2	..Split pin 3/16" x 2½" long
5	13 36 010	1	..Cross tube
6	13 36 283	1	.Canopy welded assembly
7	05 03 126	2	..Split pin ¼" x 1½" long
8	04 31 217	2	..Linch pin
9	01 00 109	2	..Plain washer 1" diameter
10	13 36 055	3	..Spring bar - inner
11	13 36 056	2	..Spring bar - outer
12	05 03 095	5	..Split pin 3/16" x 1.1/8" long
13	13 36 263	1	.Chute chain
14	13 36 284	1	.Canopy mounting bracket RH c/w spring
15	13 36 285	1	.Canopy mounting bracket LH c/w spring
16	60 10 032	1	..Spring
17	02 11 123	1	..Bolt 3/8" UNF x 1½" long
18	01 11 003	2	..Nut 3/8" UNF
19	13 36 256	5	.Inner rail
20	05 03 095	1	..Split pin 3/16" x 1.1/8" long
21	13 36 258	2	.Side rail housing
22	05 03 095	1	..Split pin 3/16" x 1.1/8" long
23	13 36 012	2	.Carrier post
24	13 36 253	3	.Chute runner housing
25	05 03 095	1	..Split pin 3/16" x 1.1/8" long
26	13 36 008	3	.Universal post
27	13 36 252	1	.Baler tow bar welded assembly c/w pins
28	13 35 144	1	..Pin c/w linch pin
29	04 31 217	1	...Linch pin
30	13 36 005	2	..Tow bar pin c/w sp. cotter
31	04 31 105	2	..Spring cotter
32	13 36 007	1	.Knuckle c/w ringed towbar pin
33	13 36 006	1	..Ringed towbar pin c/w linch pin
34	04 31 217	1	...Linch pin
	13 38 128	1	Drawbar assembly
35	13 38 127	1	.Hitch housing c/w pin & spring cotter
36	13 35 210	2	..Offset pin c/w spring cotter
37	04 31 105	2	...Spring cotter
38	13 35 206	1	..Pivot pin c/w linch pin
39	04 31 217	1	...Linch pin
40	13 38 126	1	.Drawbar housing
41	13 35 144	2	..Drawbar pin c/w linch pin
42	04 31 217	2	...Linch pin
43	13 38 125	1	.Drawbar

WHEEL & CASTOR ASSEMBLIES



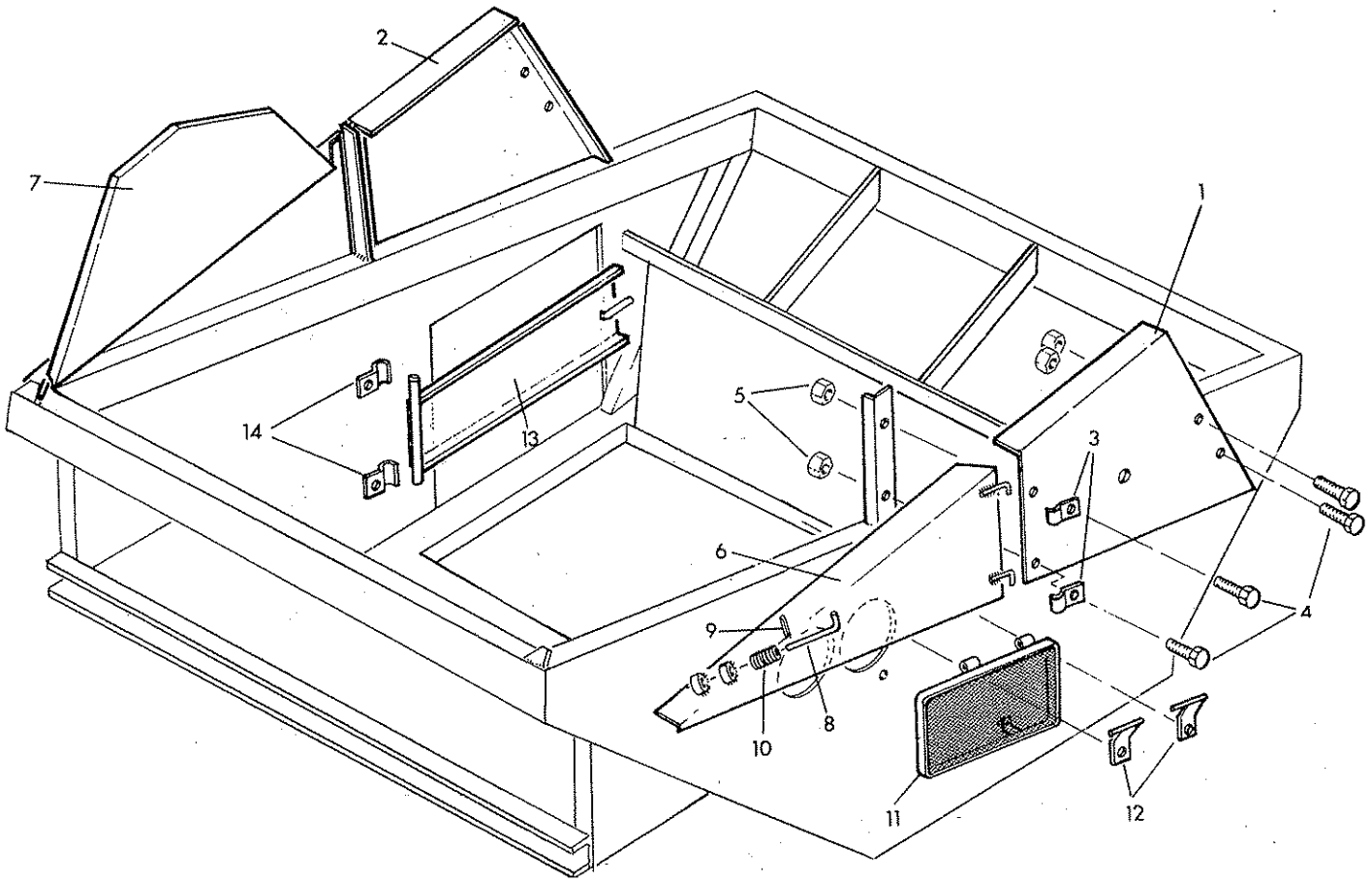
Ref	Part No.	Qty	Description	
	13 35 428	1	WHEEL & CASTOR ASSEMBLY right hand	Not
	13 35 364	1	.Castor RH c/w collar & washer	illustrated
	71 06 025	1	..Collar c/w spring dowel	
	04 22 740	1	...Spring dowel 7/16" dia. x 2½" long	
	13 37 043	1	..Thrust washer	
	13 35 429	1	WHEEL & CASTOR ASSEMBLY left hand	
1	13 35 363	1	.Castor LH c/w collar and washer	
2	71 06 025	1	..Collar c/w spring dowel	
3	04 22 740	1	...Spring dowel 7/16" dia. x 2½" long	
4	13 37 043	1	..Thrust washer	
5	13 35 365	2	.Wheel & tyre assembly - front	
	13 35 359	1	..Wheel	
	13 35 360	1	..Tyre 5 - 50 x 16 x 6 Ply	
	13 35 361	1	..Inner tube	
6	13 38 135	2	.Wheel & tyre assembly - rear	
	13 38 136	1	..Wheel	
	13 38 138	1	..Tyre 10.0/80-12 ply	
	13 38 137	1	..Inner tube	
7	13 35 358	4	.5 stud stub axle less wheel nuts comprising:-	
8	13 37 137	1	..Stub axle shaft	
9	13 37 138	1	..Axle nut 1.3/8" BSF slotted	
10	05 03 166	1	..Cotter pin	
11	13 37 140	1	..Hub shell	
12	13 37 141	1	..Oil seal	
13	13 37 142	2	..Taper roller bearings	
14	13 37 143	5	..Wheel stud	
15	01 00 206	5	..Spring washer	
16	01 33 006	5	..Locknut	
17	13 37 147	1	..Hub cap and gasket	
18	13 37 148	3	..Hub cap screws 2BA x 3/8" long	
19	02 11 166	4	..Bolt 5/8" UNF x 2" long	
20	01 41 006	4	..Aeronut 5/8" UNF	
21	13 39 087	10	.Conical wheel nut - rear wheels	
22	13 37 144	10	.Spherical wheel nut - front wheels	

TWINE RELEASE FINGER



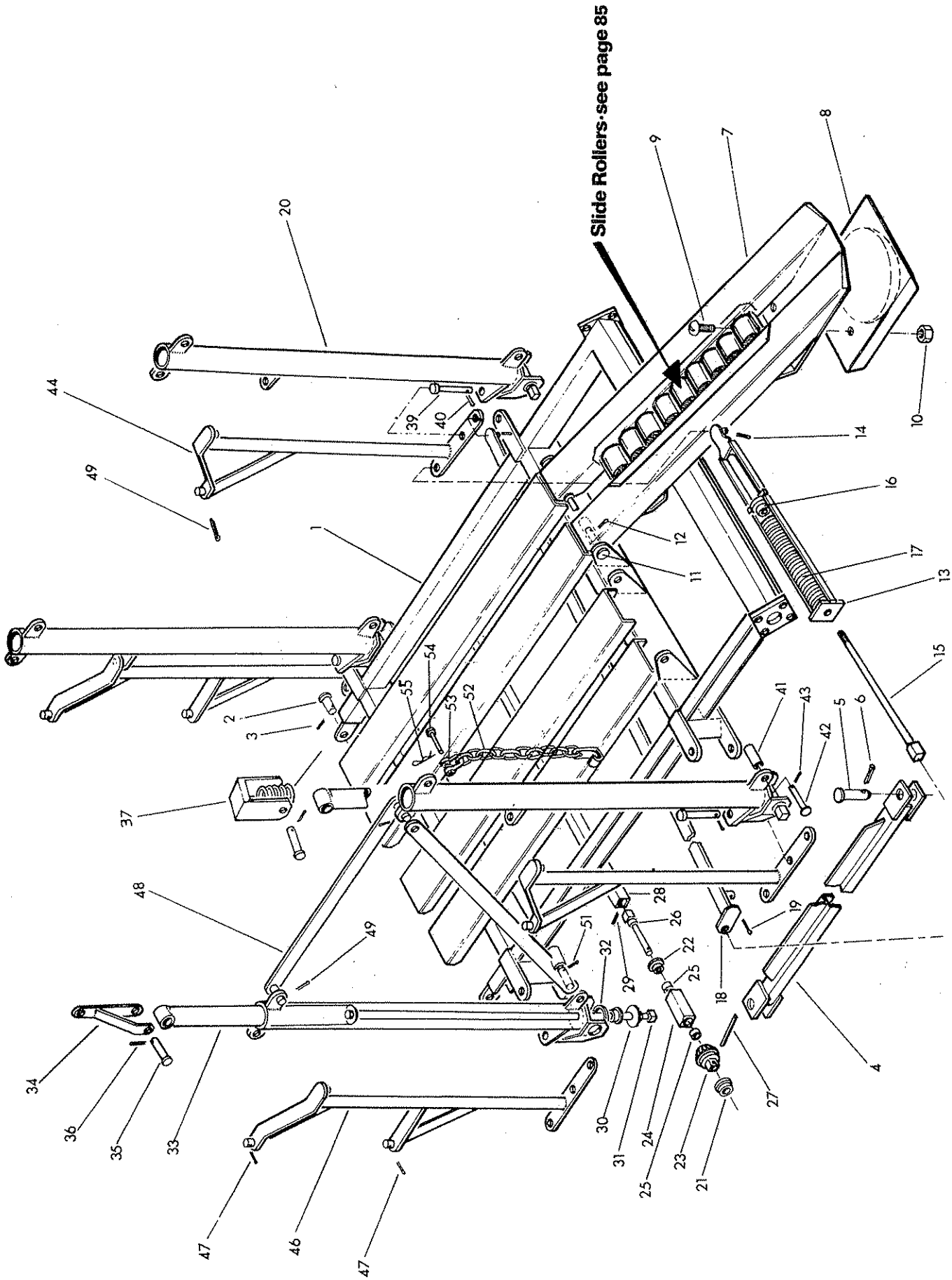
Ref	Part No	Qty	Description
	13 39 287	2	TWINE RELEASE FINGER ASSEMBLY
1	13 39 288	1	.Bracket
	13 39 289	1	.Finger arm assembly
2	13 35 196	1	..Roller pivot pin
3	13 35 197	1	..Roller c/w bush
4	13 38 253	1	...Bush
5	04 21 616	1	..Spring dowel
6	09 01 121	1	..Greaser 1/8" BSP
7	13 38 337	1	..Bush
8	13 39 076	2	.Anchor plate
9	02 11 263	4	.Bolt 3/8" UNF x 3¼" long
10	01 41 003	4	.Aeronut 3/8" UNF
11	73 15 030	1	.Spring
12	13 39 077	1	.Special bolt 1/2" UNF
13	01 00 205	1	.Spring washer 1/2"
14	13 39 078	1	.Sleeve
15	05 03 165	1	.Split pin 3/16" Ø x 2" long

MACHINE GUARDS



Ref	Part No	Qty	Description	
1	13 38 074	1	.Guard - fixed - left hand	} each c/w :-
2	13 38 075	1	.Guard - fixed - right hand	
3	13 38 362	2	..Hinge	
4	03 11 083	4	..Setscrew 3/8" UNF x 1" long	
5	01 41 003	4	..Aeronut 3/8" UNF	
6	13 38 079	1	.Guard - hinged - left hand	} each c/w:-
7	13 38 078	1	.Guard and deflector - hinged - right hand	
8	13 38 361	1	..Bolt c/w spring and pin	
9	04 20 820	1	...Spring dowel 1/8" dia. x 1¼" long	
10	81 04 018	1	...Spring	
11	13 38 082	1	.Counter guard c/w hinges	
12	13 38 372	2	..Hinge bracket	
13	13 38 099	1	.Guard	
14	13 38 393	2	..Hinge clamp	

REAR FRAME


Slide Rollers-see page 85
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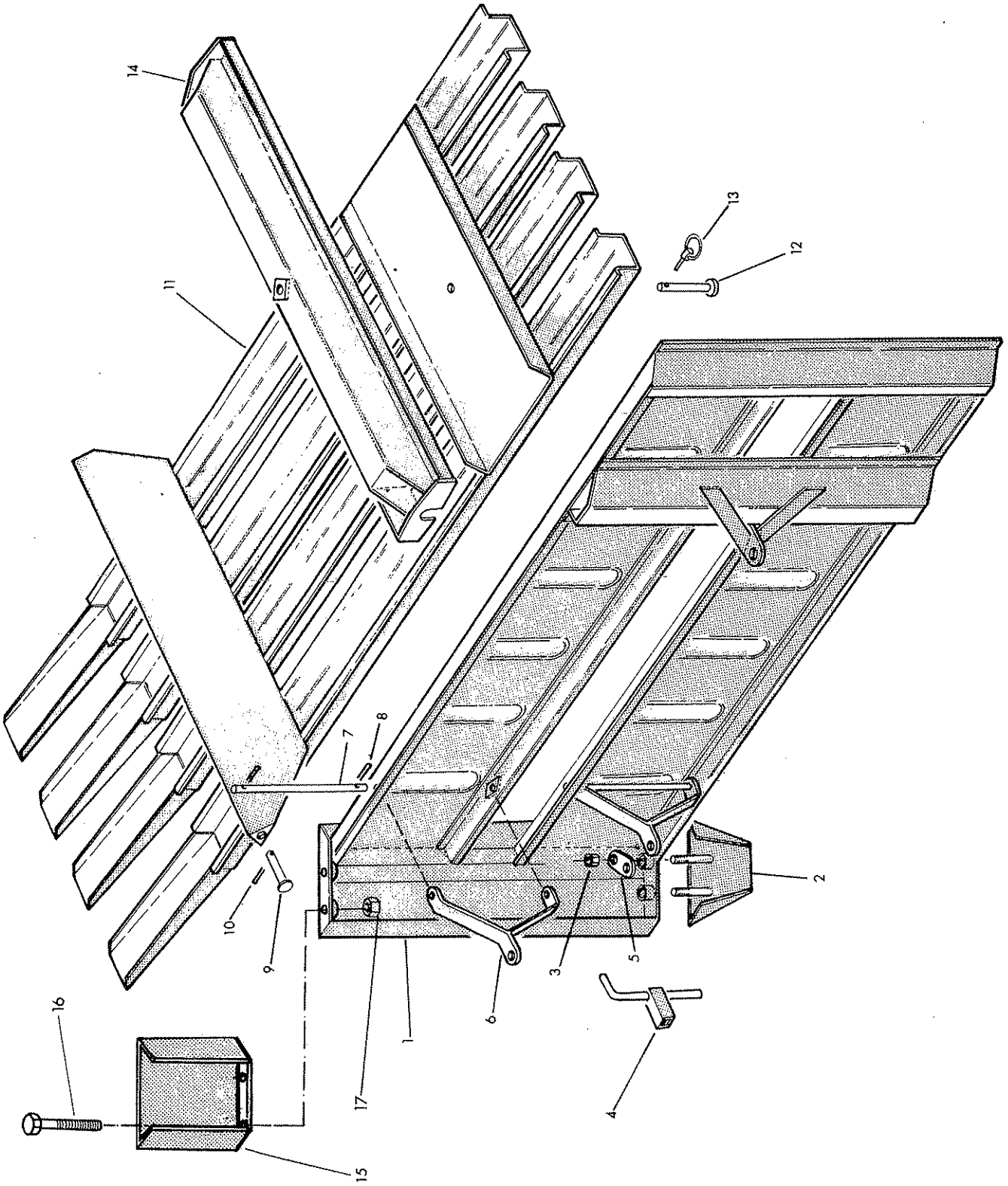
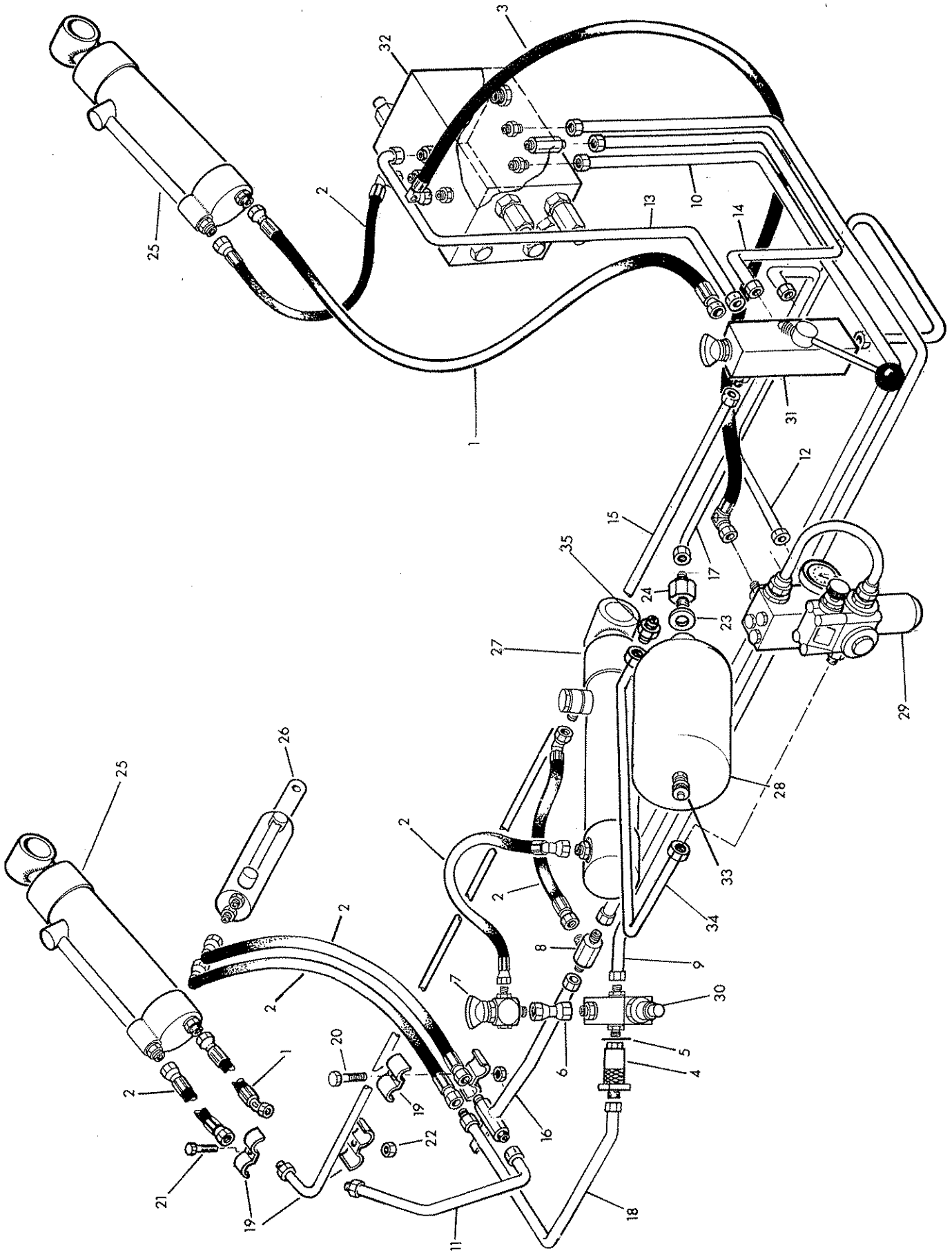
Ref	Part No.	Qty	Description
	13 39 291	1	ASSEMBLY OF REAR FRAME
1	13 39 250	1	.Rear frame welded assembly
2	13 35 010	2	..Pin c/w split pin
3	05 03 145	1	...Split pin 3/16" x 1¾" long
4	13 39 254	1	.Rear tie bar
5	13 39 005	2	..Pin c/w split pin
6	05 03 145	1	...Split pin 3/16" x 1¾" long
7	13 39 251	2	.Rear slide c/w dome
8	13 39 253	1	..Dome welded assembly
9	93 73 045	2	..Screw M10 x 20 mushroom head
10	91 43 005	2	..Aeronut M10
11	13 38 351	2	..Pin c/w split pin
12	05 03 165	1	...Split pin 3/16" diameter x 2" long
13	13 38 068	2	.Sidegate spring cage c/w split pin
14	05 03 126	1	..Split pin ¼" diameter x 1½" long
15	13 38 344	2	.Adjuster screw
16	13 38 343	2	.Adjuster nut
17	60 05 013	4	.Spring
18	13 38 069	2	.Cross link c/w split pins
19	05 03 126	2	..Split pin ¼" diameter x 1½"
20	13 38 018	4	.Housing - gear box c/w bushes
21	13 38 292	1	..Headed bush x 1¾" I/D
22	13 35 233	2	..Headed bush x 1" I/D
23	13 38 293	4	.Pinion
24	13 38 296	4	.Spacer boss c/w bushes
25	70 14 028	2	..Bush 7/8" I/D
26	13 38 295	4	.Pinion shaft c/w cotter pin
27	04 22 520	1	..Spring cotter 5/16" diameter x 1¼" long
28	13 38 297	2	.Torque tube c/w split pins
29	05 03 165	2	.Split pin 3/16" diameter x 2" long
30	13 38 294	4	.Gear
31	13 38 020	4	.Jack screw
32	60 01 136	4	.Thrust washer
33	13 38 019	4	.Jack tube
34	13 38 066	2	.Front link
35	70 12 025	2	.Pin c/w split pin
36	05 03 125	1	..Split pin - 3/16" diameter x 1½"
37	13 38 065	2	.Rear link
38	60 05 013	2	.Spring
39	13 38 349	4	.Jack pin c/w split pin
40	05 03 125	1	..Split pin 3/16" diameter x 1½"
41	13 38 348	4	.Spacer tube
42	60 00 039	4	.Pin c/w split pin
43	05 03 095	1	..Split pin 3/16" diameter x 1.1/8" long
44	13 38 029	2	.Sidegate support - rear c/w split pin
45	05 03 125	1	..Split pin 3/16" diameter x 1½" long
46	13 38 028	2	.Sidegate support - front c/w split pin
47	05 03 125	2	..Split pin 3/16" diameter x 1½" long
48	13 38 346	2	.Top stay c/w split pin
49	05 03 095	2	..Split pin 3/16" diameter x 1.1/8"
50	13 38 347	2	.Diagonal stay c/w split pin
51	05 03 095	1	..Split pin 3/16" diameter x 1.1/8" long
52	13 38 072	2	.Slide anchor chain c/w shackle assembly
	60 00 087	1	..Shackle assembly c/w pin
53	60 00 088	1	...Shackle
54	60 00 089	1	...Pin
55	04 31 105	1	...Spring cotter

SIDE GATES & TOP CLAMP



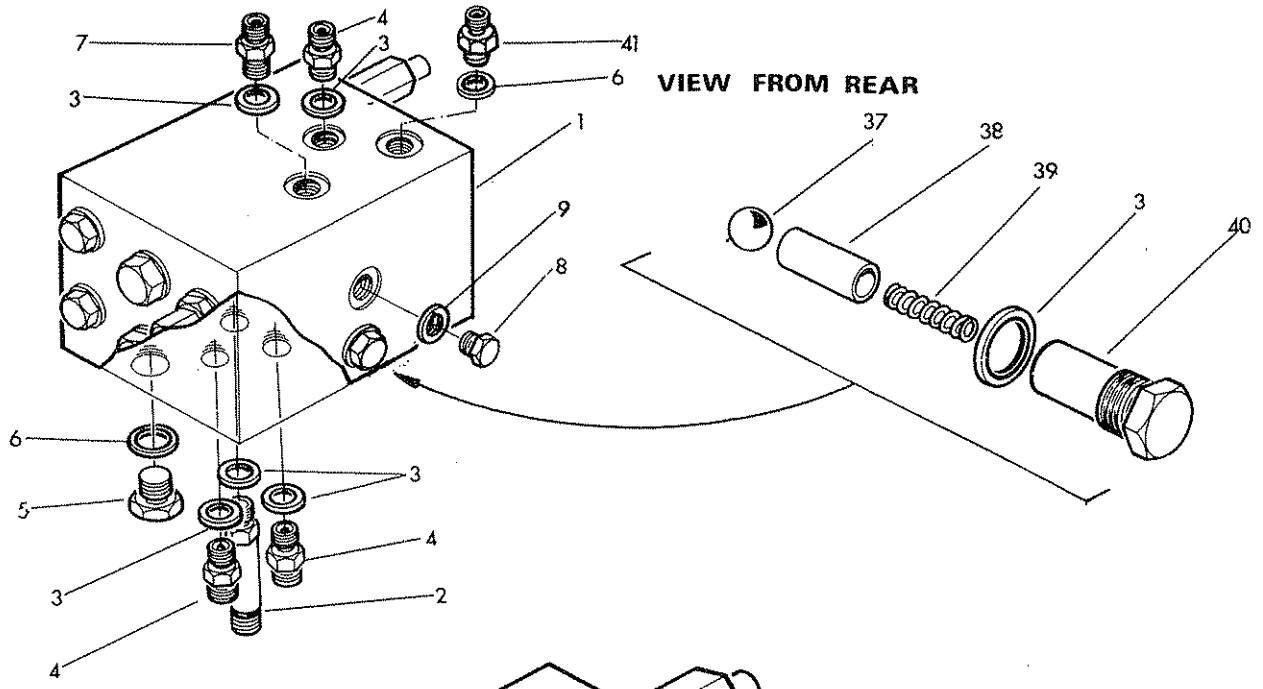
Ref	Part No	Qty	Description
1	13 38 017	2	.Sidegate welded assembly
2	13 38 027	2	.Sidegate extension c/w nuts
3	01 51 006	2	..Aeronut 5/8" UNF(thin)
4	13 38 345	1	.Handle
5	13 38 353	1	.Handle holder
6	13 38 031	4	.Sidegate yoke
7	13 38 306	4	.Yoke pin c/w split pin
8	05 03 105	2	..Split pin 3/16" x 1¼"
9	60 01 121	2	.Pin - front
10	05 03 105	1	..Split pin 3/16" x 1¼"
11	13 38 067	1	.Top clamp welded assembly
12	13 38 350	1	.Pin - rear
13	04 31 217	1	..Linch pin
14	13 38 062	1	.Rear beam welded assembly
15	13 39 006	2	.Sidegate cap c/w nut and bolt
16	02 11 186	2	..Bolt 5/8" UNF x 2¼" long
17	01 41 006	2	..Aeronut 5/8" UNF

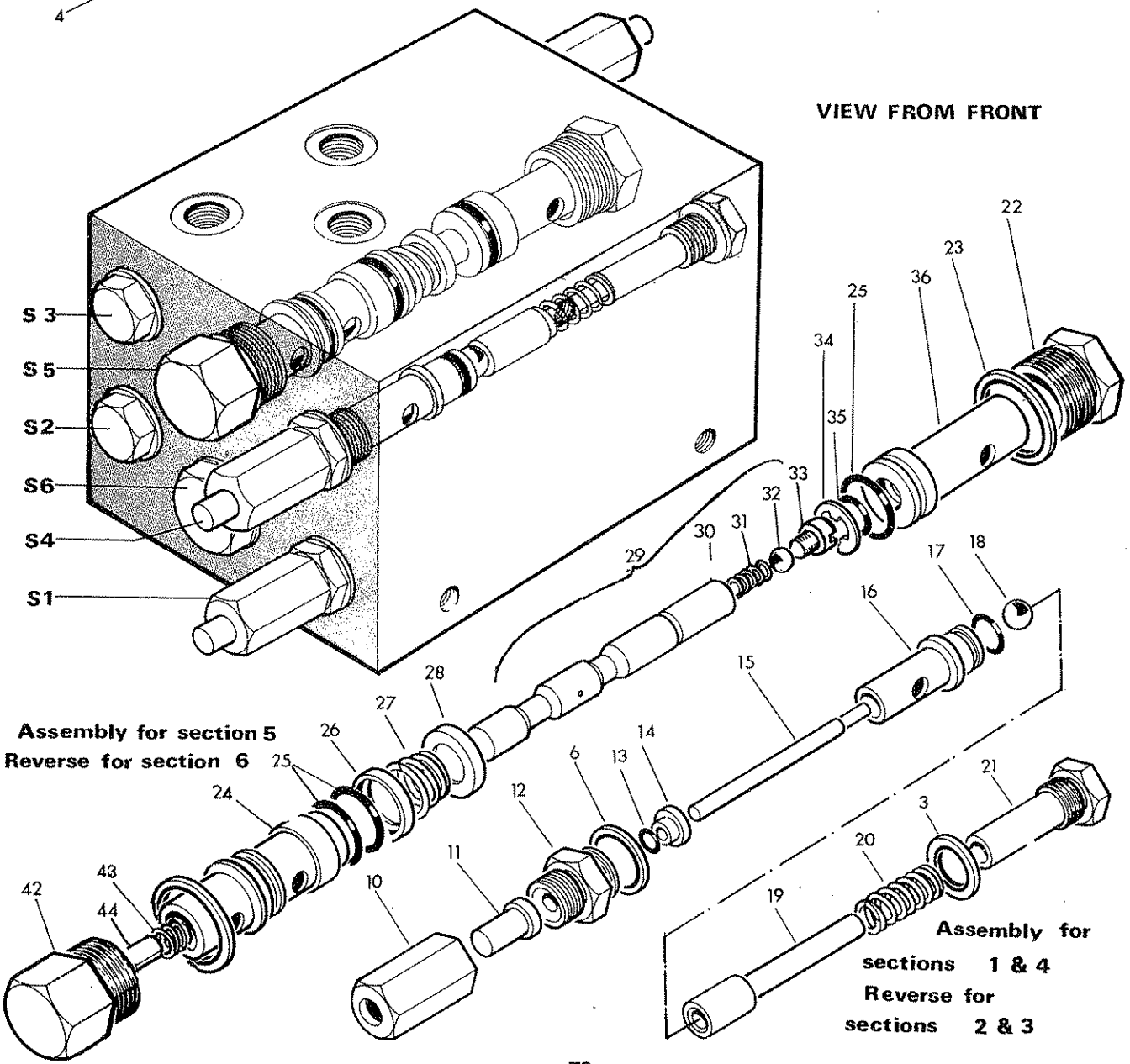
HYDRAULIC INSTALLATION



Ref	Part No.	Qty	Description
	80 16 252		HYDRAULIC INSTALLATION
1	85 43 024	2	.Hose ½" BSP x 21" long
2	85 41 213	7	.Hose 3/8" BSP x 19½" long
3	85 01 080	1	.Hose ½" BSP x 22" long
4	81 21 450	1	.Lock restrictor assembly (see page77)
5	86 50 103	1	.Bonded seal 3/8" BSP
6	85 81 139	1	.Double swivel 3/8" BSP
7	13 37 134	1	.Hydraulic tap assembly (see77)
8	85 81 121	1	.Tee ½" x ½" x 3/8" BSP
9	13 35 392	1	.Steel pipe assembly (lift control valve to sequence valve)
10	13 35 394	1	.Steel pipe assembly (tee to sequence valve)
11	13 38 085	1	.Steel pipe assembly (pusher ram to tee pipe)
12	13 38 086	1	.Steel pipe assembly (isolator valve to manifold valve)
13	13 38 087	1	.Steel pipe assembly (sequence valve top to isolator valve)
14	13 38 088	1	.Steel pipe assembly (sequence valve bottom to isolator valve)
15	13 38 089	1	.Steel pipe assembly (isolator valve to pusher ram (OS)
16	13 38 090	1	.Steel pipe assembly (tee pipe assembly to Gland Tee)
17	13 38 091	1	.Steel pipe assembly (accumulator to isolation valve)
18	13 38 092	1	.Steel pipe assembly (adjustable restrictor to swing arm ram base end)
19	60 12 026	4	.Pipe clamp
20	02 11 123	1	.Bolt 3/8" UNF x 1½" long
21	02 11 143	1	.Bolt 3/8" UNF x 1¾" long
22	01 41 003	2	.Aeronut 3/8" UNF
23	86 50 109	1	.Bonded seal 1¼" BSP
24	85 81 162	1	.Accumulator adaptor
25	13 38 093		Pusher ram (see page80)
26	13 35 430		Swing ram (see page81)
27	13 35 435		Lift ram (see page79)
28	13 35 961		Accumulator
29	81 27 500		Manifold valve (see page75)
30	81 27 354		Lift control valve (see page77)
31	81 27 403		Isolator valve assembly (see page77)
32	81 27 250		Sequence valve (see page73)
33	81 26 015		Charge valve assembly complete with '0' ring
	81 26 016		.Charge valve core
	86 00 103		.'0' ring
34	13 39 294	1	.Steel pipe
35	11 81 014	1	.Union 3/8" BSP/1/4" BSPT.

SEQUENCE VALVE



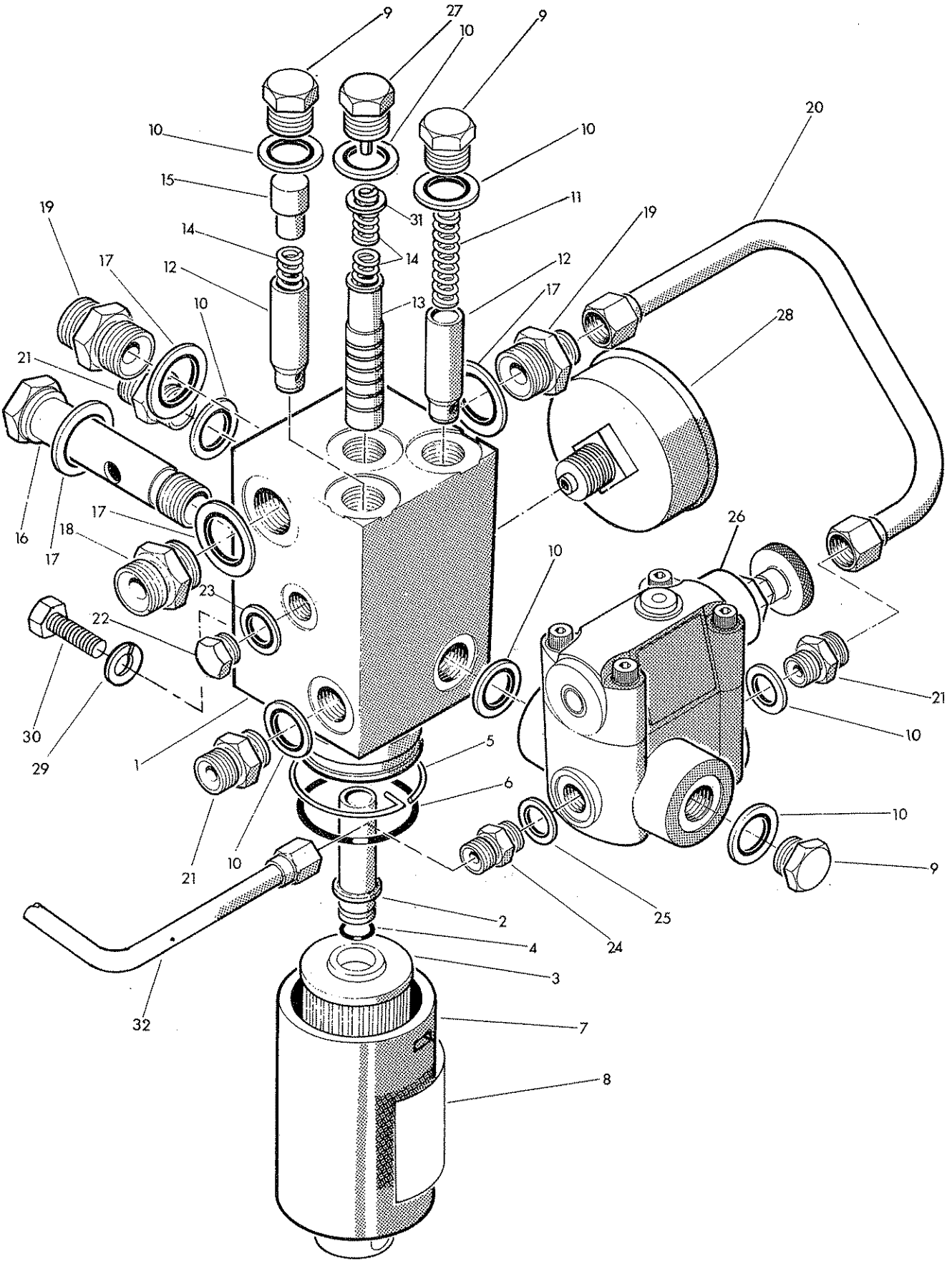


Ref	Part No.	Qty	Description
	81 27 250	1	SEQUENCE VALVE ASSEMBLY
1	81 27 252	1	.Main body
2	81 27 121	1	.Extended union ½" - 3/8" BSP
3	86 50 103	11	.Bonded seal 3/8" BSP
4	60 00 112	3	.Union ½" - 3/8" BSP
5	81 03 001	1	.Plug ½" BSP
6	86 50 104	6	.Bonded seal ½" BSP
7	60 00 113	1	.Union 3/8" BSP
8	85 81 133	1	.Plug - ¼" BSP
9	86 50 102	1	.Bonded seal - ¼" BSP
10	81 27 006	4	.Plunger guide
11	81 27 010	4	.Plunger pilot plug
12	81 27 004	4	.Push rod guide
13	86 00 103	4	.'O' ring
14	81 27 013	4	.Push rod guide ring
15	81 27 009	4	.Push rod
16	81 27 007	4	.Ball seat
17	86 00 109	4	.'O' ring
18	09 05 112	4	.Ball 3/8" dia.
19	81 27 008	4	.Spring seat
20	81 11 009	4	.Spring
21	81 27 005	4	.Retaining plug
22	81 27 067	2	.End plug
23	86 50 218	4	.Bonded seal 1 1/8" UNF
24	81 27 068	2	.Valve sleeve
25	86 00 401	6	.'O' ring
26	81 27 070	2	.Seal plate
27	81 14 003	2	.Spring
28	81 27 071	2	.Spring plate
29	81 27 066	2	.Valve spool assembly
30	81 27 130	1	..Drilled valve spool
31	80 13 036	1	..Spring
32	09 05 506	1	..Ball (6 mm)
33	81 27 131	1	..Check valve screw
34	81 14 058	2	.Circlip
35	86 00 110	2	.'O' ring
36	81 27 069	2	.Seal spacer
37	09 05 116	1	.Ball ½" diameter
38	81 27 084	1	.Spring guide
39	81 11 009	1	.Spring
40	81 27 072	1	.Spring retainer
41	85 81 110	1	.Double male union
42	81 27 132	2	.End plug
43	81 11 009	2	.Spring
44	81 27 113	2	.Spindle stop slug

* 86 99 151 SEAL KIT

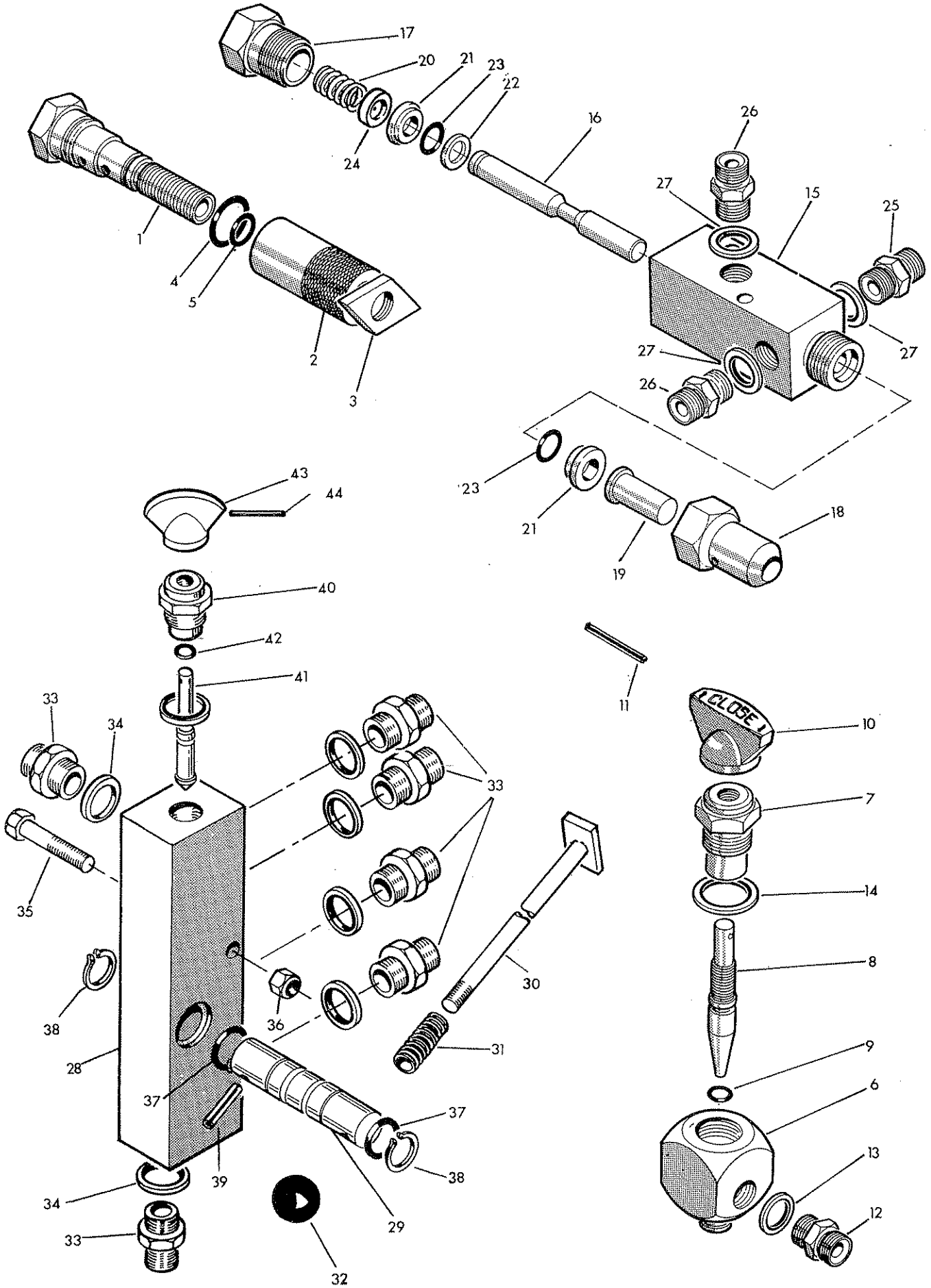
Note:- Valve spool and sleeve supplied as matched assembly only.

MANIFOLD VALVE



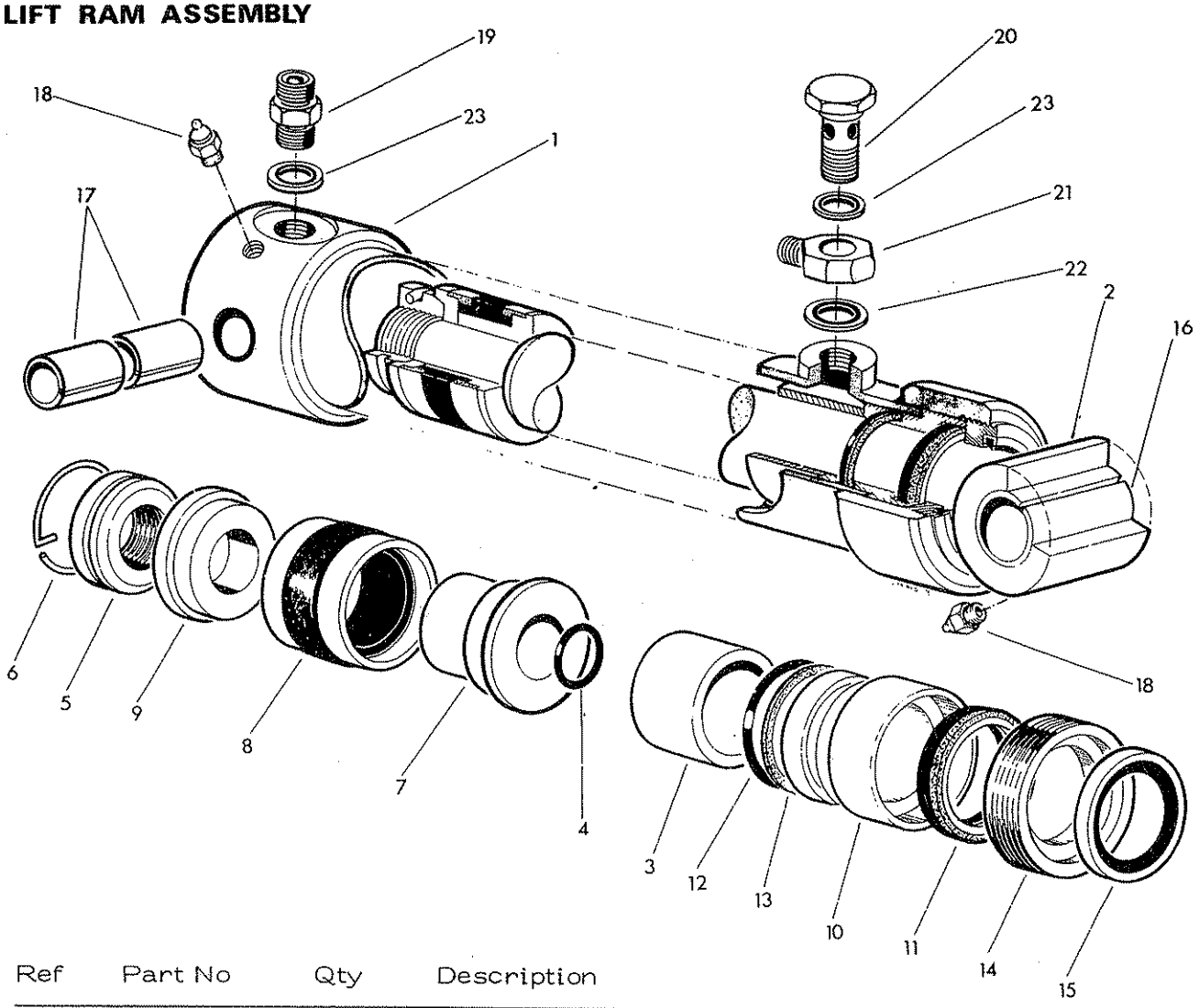
Ref	Part No.	Qty	Description
	81 27 500		MANIFOLD VALVE ASSEMBLY
1	81 27 501	1	.Main body
2	81 27 123	1	.Filter adaptor
3	84 01 006	1	.Filter element c/w '0' ring
4	87 00 641	1	..'0' ring
5	81 27 083	1	.Locking wire
6	86 00 306	1	.'0' ring
7	81 27 075	1	.Filter case
8	84 01 007	1	.Instruction label
9	81 03 001	3	.Plug 1/2" BSP
10	86 50 104	8	.Bonded seal 1/2" BSP
11	81 04 018	1	.Spring
12	81 27 078	2	.Piston
13	81 27 124	1	.Safety piston
14	81 11 009	3	.Spring
15	81 27 079	1	.Spring spacer
16	81 27 080	1	.Banjo bolt
17	86 50 106	4	.Bonded seal 3/4" BSP
18	85 81 136	1	.Union 3/4" BSP - 3/4" BSP
19	85 81 130	2	.Union 3/4" BSP - 1/2" BSP
20	81 27 081	1	.Pipe assembly 1/2" BSP
21	85 81 110	3	.Union 1/2" BSP - 1/2" BSP - 1/2" BSP
22	80 03 001	1	.Plug 3/8" BSP
23	86 50 103	1	.Bonded seal 3/8" BSP
24	85 81 115	1	.Union 3/8" BSP - 1/4" BSP
25	86 50 102	1	.Bonded seal 1/4" BSP
26	81 11 260	1	.Unloader valve assembly
27	81 27 086	1	.End plug
28	81 27 090	1	.Pressure gauge
29	01 00 203	2	.Spring washer 3/8" dia. - fixing
30	03 11 073	2	.Setscrew 3/8" UNF x 7/8" - fixing
31	81 27 091	1	.Special washer
32	13 39 294	1	Steel pipe (for reference only)

AUXILIARY HYDRAULIC ASSEMBLIES



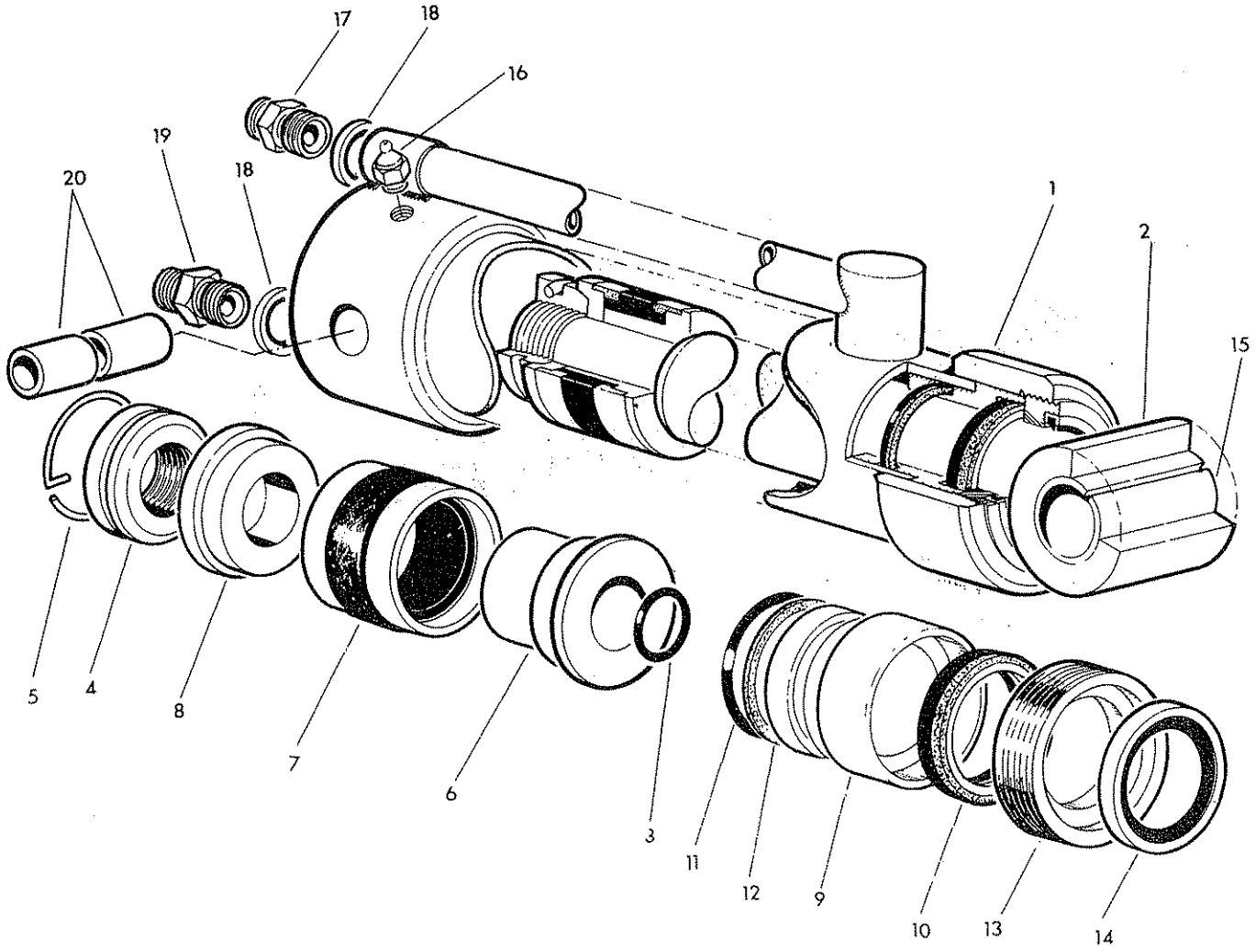
Ref	Part No.	Qty	Description
	81 27 450	1	LOCK/RESTRICTOR ASSEMBLY
1	81 27 451	1	.Main body
2	81 27 116	1	.Sleeve
3	81 27 117	1	.Lock nut
4	87 00 646	1	.'0' ring
5	87 00 640	1	.'0' ring
	60 00 050	2	HYDRAULIC TAP ASSEMBLY
6	60 00 183	1	.Tap body
7	81 06 043	1	.Gland nut
8	81 06 044	1	.Spindle c/w '0' ring
9	81 06 045	1	..'0' ring
10	81 08 006	1	.Knob
11	04 20 820	1	.Spring dowel 1/8" diameter
12	60 00 113	1	.Union 3/8" BSP
13	86 50 103	1	.Bonded seal 3/8" BSP
14	86 50 104	1	.Bonded seal 1/2" BSP
	81 27 354	1	LIFT CONTROL VALVE ASSY c/w UNIONS
	81 27 352	1	.Lift control valve
15	81 27 353	1	..Main body
16	81 27 110	1	..Spindle
17	81 27 125	1	..Spring cap
18	81 27 112	1	..Push rod cap
19	81 27 113	1	..Tappet
20	81 27 126	1	..Spring
21	81 27 114	2	..Seal plate
22	81 27 115	1	..Spacer
23	86 00 110	2	..'0' ring
24	81 27 127	1	.Spring plate
25	60 00 112	1	.Union 1/2" - 3/8" BSP
26	60 00 113	2	.Union 3/8" BSP
27	86 50 103	3	.Bonded seal 3/8" BSP
	81 27 403	1	ISOLATION VALVE ASSEMBLY c/w UNIONS
28	81 27 404	1	.Main body
29	81 27 088	1	.Rotary spindle
30	81 27 089	1	.Operating lever
31	81 04 018	1	.Spring
32	09 03 112	1	.Lever knob
33	85 81 110	6	.Union 1/2" BSP
34	86 50 104	7	.Bonded seal 1/2" BSP
35	02 11 182	2	.Bolt 5/16" UNF x 2¼" long
36	01 41 002	2	.Aeronut 5/16" UNF
37	86 00 113	2	.'0' ring
38	04 01 114	2	.Circlip
39	04 22 524	1	.Spring dowel 5/16" dia. x 1½" long
40	81 06 043	1	.Gland nut
41	81 27 119	1	.Spindle c/w '0' ring
42	81 06 045	1	..'0' ring
43	81 08 006	1	.Tap knob
44	04 20 820	1	.Spring dowel 1/8" dia. x 1¼" long

LIFT RAM ASSEMBLY



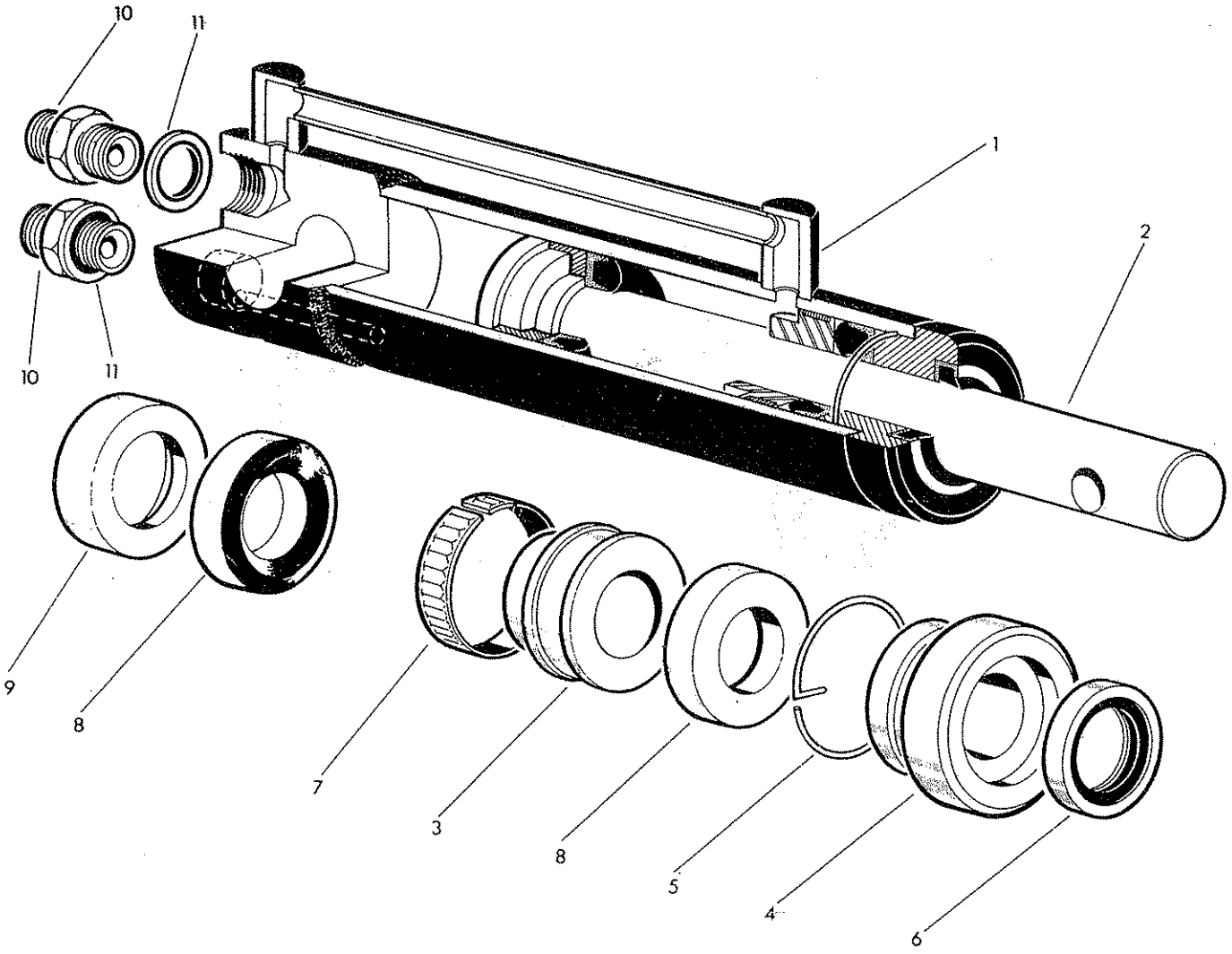
Ref	Part No	Qty	Description
	13 35 435	1	PLATFORM LIFT RAM ASSEMBLY c/w BUSHES etc
	13 35 952	1	Ram - 2¼" bore x 12" stroke comprising
1	13 35 379	1	..Ram cylinder
2	72 12 004	1	..Piston rod 'O' ring and nut
3	71 06 196	1	..Ram spacer
4	86 00 119	1	...'O' ring for piston rod
5	71 01 096	1	..Piston nut
6	71 01 152	1	..Locking ring
7	71 01 097	1	..Piston inner assembly c/w seal
8	86 35 131	1	...Seal
9	71 01 098	1	..Piston - outer
10	71 01 099	1	..Gland housing assembly
11	86 22 127	1	...Gland seal
12	86 00 304	1	...'O' ring
13	86 09 304	1	...Anti-extrusion ring
14	71 01 100	1	..Gland nut assembly
15	86 40 328	1	...Wiper seal
16	71 05 050	1	.Bush - rod end
17	71 01 158	2	.Sleeve
18	09 01 121	2	.Greaser
19	60 00 113	1	.Union 3/8" BSP
20	85 81 138	1	.Banjo bolt
21	85 81 137	1	.Banjo
22	86 50 104	1	.Bonded seal ½" BSP
23	86 50 103	2	.Bonded seal 3/8" BSP
	86 99 102		SEAL KIT

PUSHER RAM ASSEMBLY



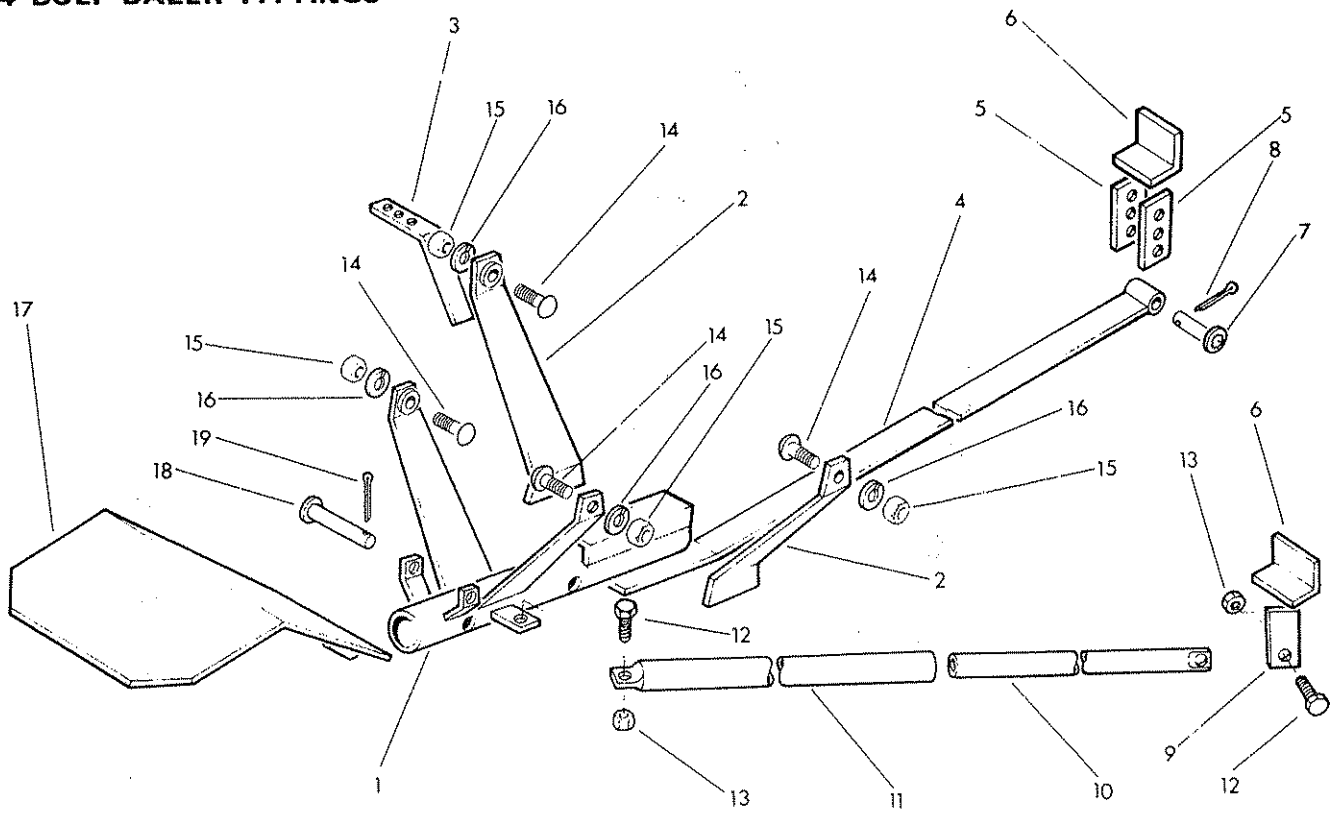
	13 35 478		PUSHER RAM ASSEMBLY c/w BUSHES etc
	13 35 434	1	.Ram - 2¼" bore x 13 7/8" stroke comprising
1	72 12 272	1	..Ram cylinder
2	13 37 010	1	..Piston rod
3	86 00 119	1	...'O' ring for piston rod
4	71 01 096	1	..Piston nut
5	71 01 152	1	..Locking ring
6	71 01 097	1	..Piston inner assembly c/w seal
7	86 35 131	1	...Seal
8	71 01 098	1	..Piston - outer
9	13 37 009	1	..Gland housing assembly
10	86 29 129	1	...Seal
11	86 00 304	1	...'O' ring
12	86 09 304	1	...Anti-extrusion ring
13	13 37 011	1	..Gland nut assembly
14	86 29 117	1	...Wiper
15	60 12 022	1	.Bush - rod end
16	09 01 121	1	.Greaser
17	60 00 113	1	.Union 3/8" BSP
18	86 50 103	2	.Bonded seal 3/8" BSP
19	60 00 112	1	.Union 3/8" - ½" BSP
20	71 01 158	2	.Sleeve
	86 99 153		SEAL KIT

SWING RAM ASSEMBLY



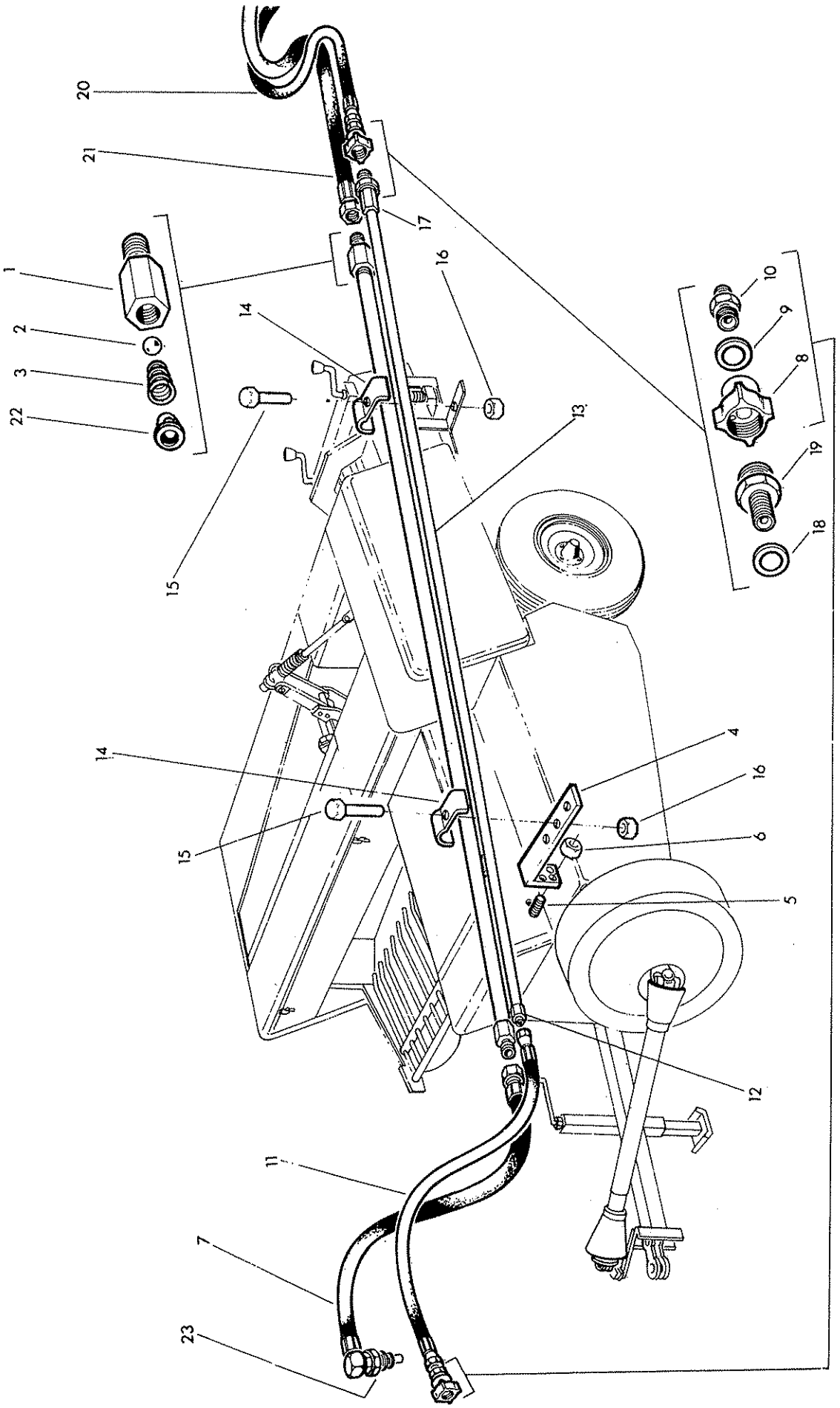
Ref	Part No	Qty	Description
	13 35 430	1	SWING RAM ASSEMBLY c/w UNIONS
	13 35 431	1	.Basic ram
1	13 35 432	1	..Ram barrel welded assembly
2	13 37 004	1	..Piston rod
3	13 37 005	1	..Retaining ring
4	13 37 006	1	..Gland bush
5	13 37 007	1	..Locking wire
6	86 40 319	1	..Wiper seal
7	86 55 127	1	..Tolerance ring
8	86 14 119	2	..Single acting seal
9	13 37 008	1	..Wear ring
10	60 00 113	2	.Union 3/8" BSP
11	86 50 103	2	.Bonded seal 3/8" BSP
	86 99 155		Seal kit

4 BOLT BALER FITTINGS



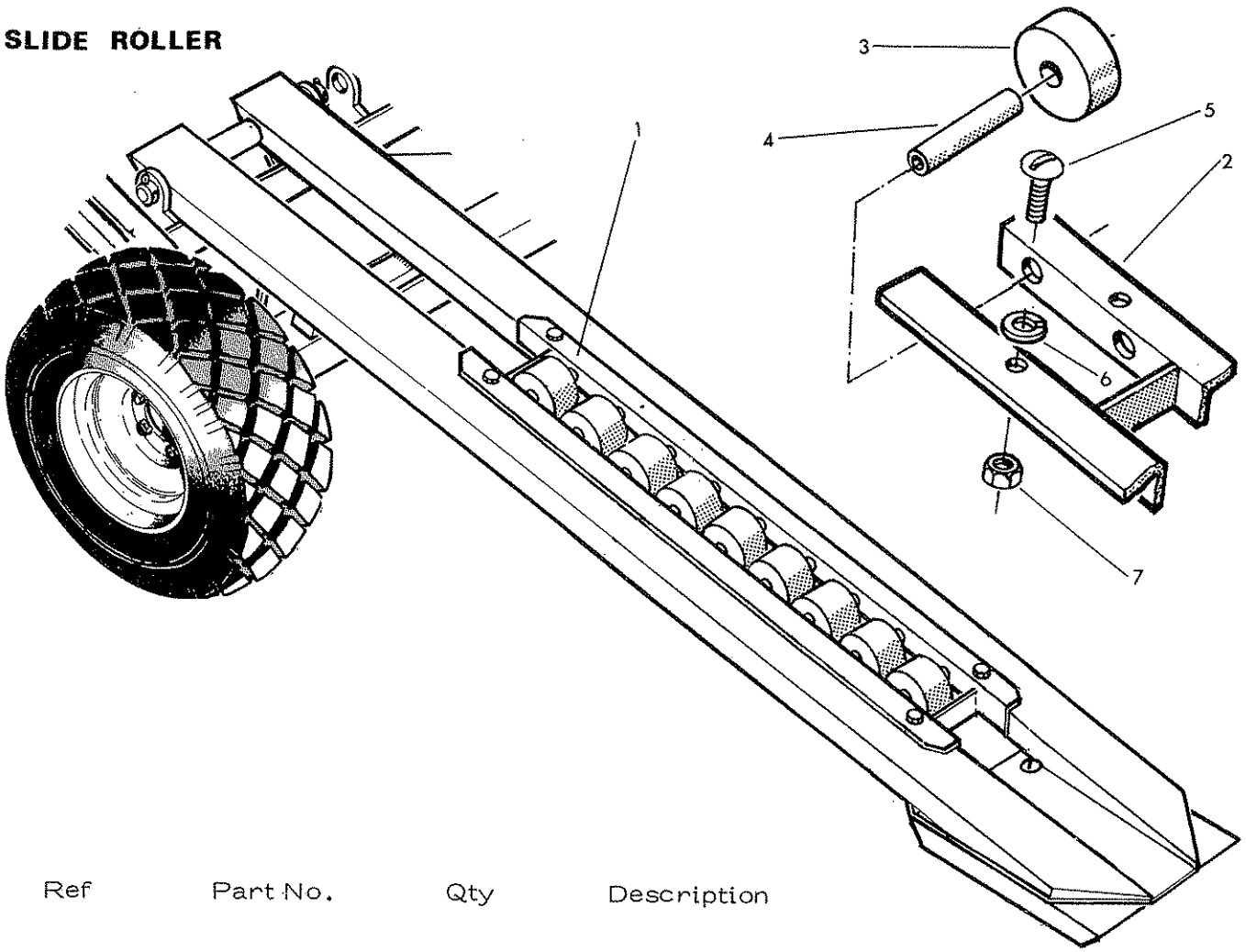
Ref	Part No	Qty	Description
	13 36 273	1	4 BOLT BALER FITTING ASSEMBLY
1	13 36 269	1	.Baler tow bar housing
2	13 36 032	2	.Mounting bracket
3	13 36 033	1	.Pipe support stay
4	13 36 037	1	.Axle pull bar
5	13 36 035	2	.Axle lug
6	13 36 026	2	.Axle mounting angle
7	13 36 036	1	.Headed pin
8	05 03 105	1	..Split pin 3/16" dia. x 1¼"
9	13 36 029	1	.Strut lug
10	13 36 027	1	.Inner strut
11	13 36 028	1	.Outer strut
12	03 11 146	2	.5/8" UNF setscrew x 1¾" long
13	01 41 006	2	.5/8" UNF aeronut
14	93 00 102	4	.M10 domed setscrew x 32 mm long
15	91 13 005	4	.M10 plain nut
16	01 00 203	4	.3/8" spring washer
17	13 36 262	1	.Bale platform
18	13 36 018	1	..Pin c/w split pin
19	05 03 105	1	...3/16" split pin x 1¼" long

BALER HYDRAULIC FITTINGS KIT



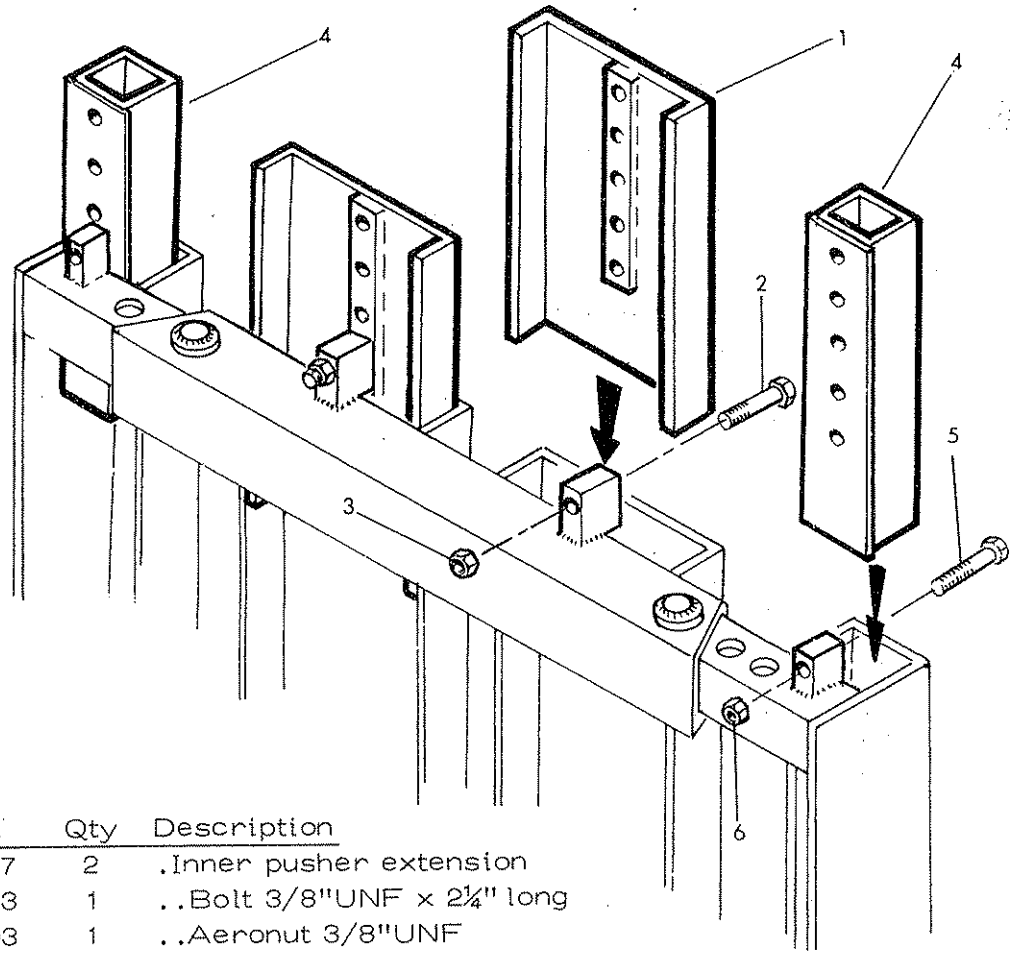
Ref	Part No	Qty	Description
	80 16 251		BALER PIPING INSTALLATION
1	85 81 140	1	.Non return valve housing
2	09 05 124	1	.Steel ball ¾" diameter
3	80 16 001	1	.Conical spring
4	13 36 022	1	.Pipe stay c/w bolts and nuts
5	03 11 105	2	.. Setscrew ½" UNF x 1¼" long
6	01 41 005	2	.. Aeronut ½" UNF
7	85 01 069	1	.Hose ¾" BSP x 120" long
8	85 90 023	2	.Female self-sealing coupling
9	86 50 103	2	.Bonded seal 3/8" BSP
10	60 00 112	2	.Union 3/8" BSP x ½" BSP
11	85 13 024	1	.Hose ½" BSP x 120" long
12	85 81 142	1	.Adaptor ½" BSP x 3/8" BSP
13	13 36 265	1	.Return & pressure pipe welded assembly
14	13 36 013	2	.Pipe clip c/w nut and bolt
15	02 11 165	1	..Bolt ½" UNF x 2" long
16	01 41 005	1	..Aeronut ½" UNF
17	80 02 056	1	.Adaptor
18	86 50 104	1	.Bonded seal ½" BSP
19	85 90 013	1	.Male self-sealing coupling
20	85 13 014	1	.Hose ½" BSP x 84" long
21	85 01 070	1	.Hose ¾" BSP x 84" long
22	80 16 002	1	.Ball stop
23		1	.Tractor return connector - to suit tractor

SLIDE ROLLER



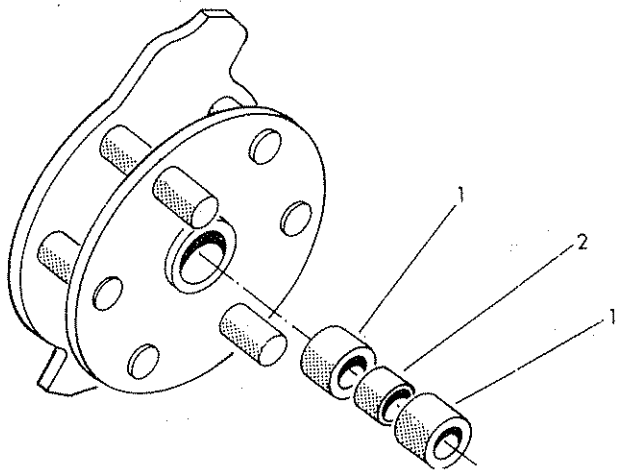
Ref	Part No.	Qty	Description
1	13 38 118	2	ROLLER SLIDE COMPLETE COMPRISING:
2	13 38 141	1	.Roller frame
3	60 01 058	9	..Wooden roller
4	13 38 461	9	..Roller axle
5	93 00 102	4	..Domed set screw M10 x 32
6	01 00 203	4	..Spring washer 3/8" dia
7	91 13 005	4	..Plain nut M10

PUSHER EXTENSION SET



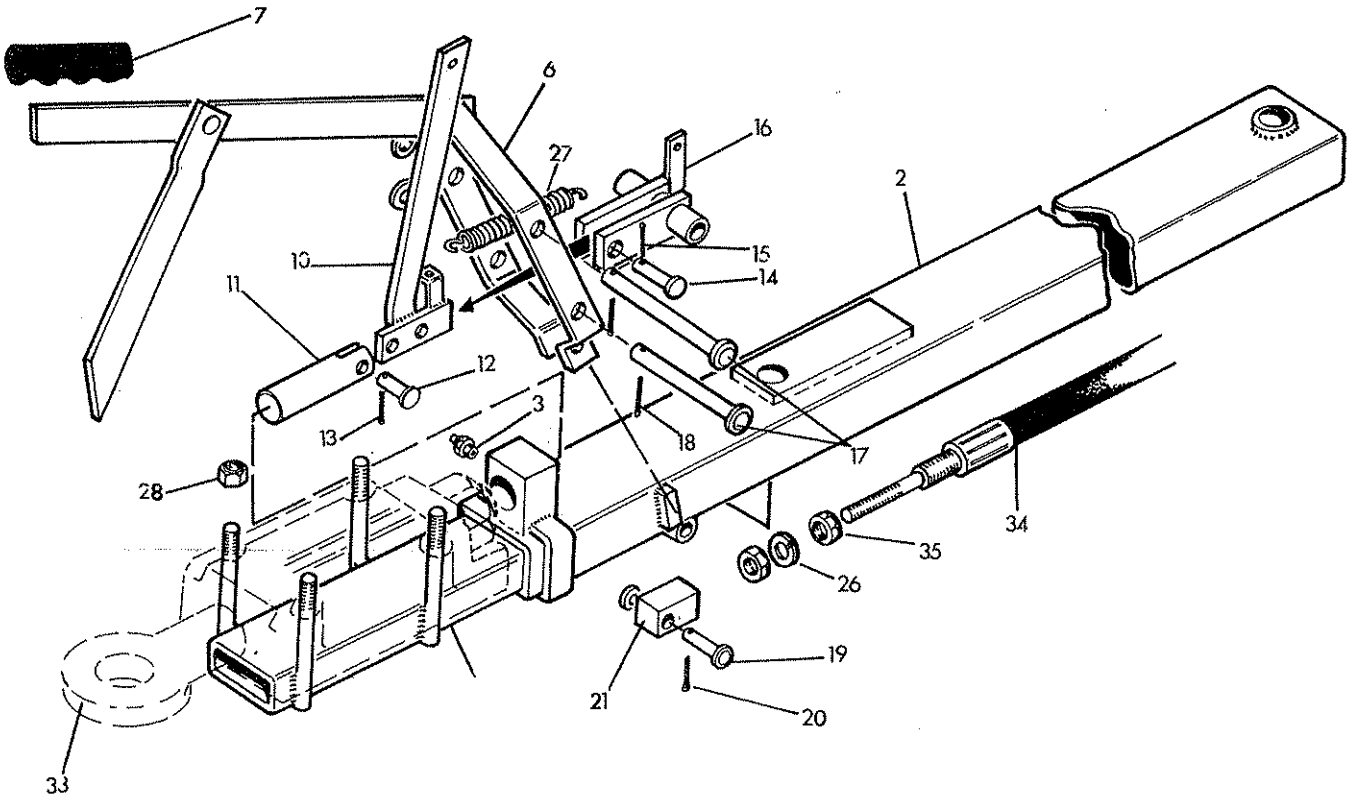
Ref	Part No.	Qty	Description
1	13 39 297	2	.Inner pusher extension
2	02 11 183	1	..Bolt 3/8"UNF x 2¼" long
3	01 41 003	1	..Aeronut 3/8"UNF
4	13 39 296	2	.Outer pusher extension
5	02 11 283	1	..Bolt 3/8" UNF x 3½" long
6	01 41 003	1	..Aeronut 3/8" UNF

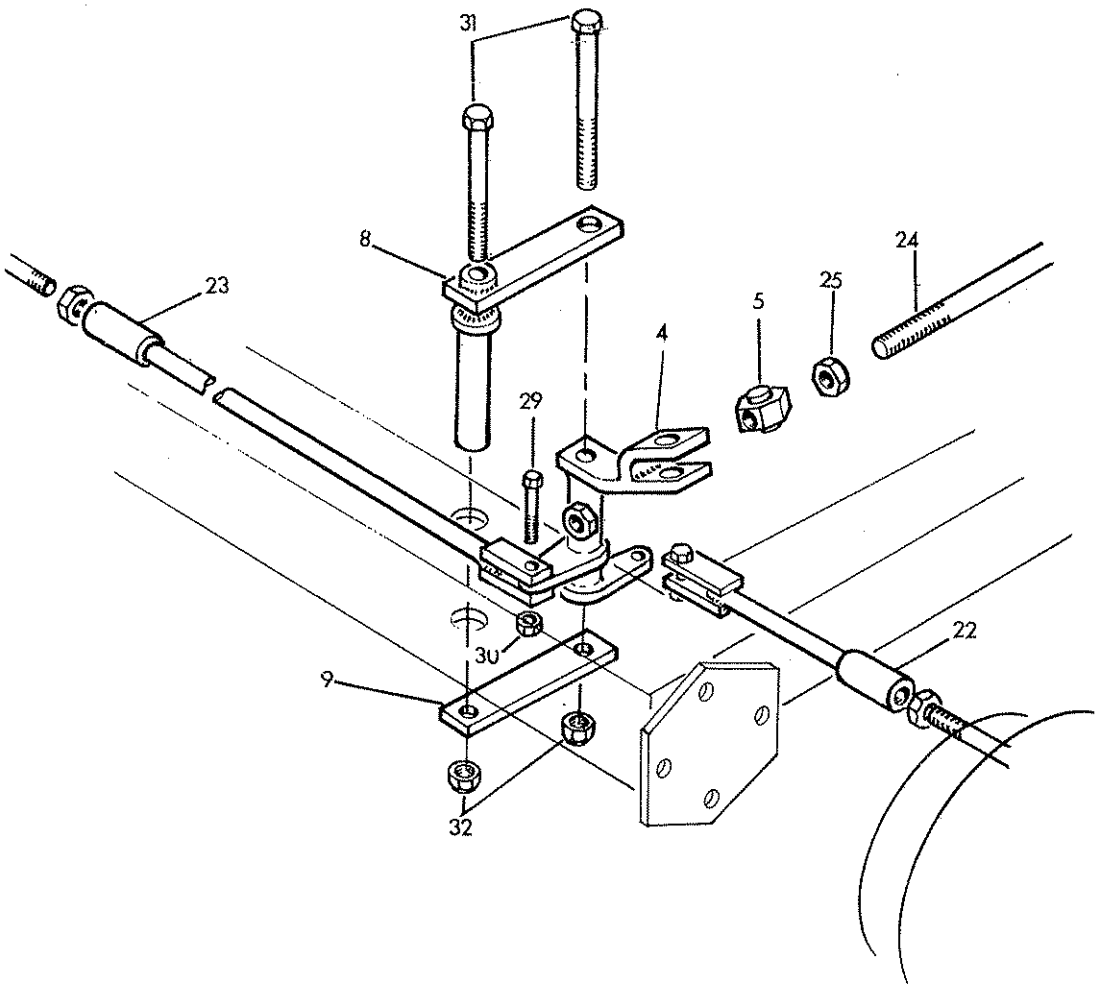
OPTIONAL EXTRA



Ref	Part No.	Qty	Description
	13 35 486	1	COUNTER WHEEL 6 PEG
1	13 38 253	2	.Bush
2	13 37 209	1	.Bush spacer

BRAKE SYSTEM ASSEMBLY





Ref	Part No.	Qty	Description
	13 39 305	1	BRAKE SYSTEM ASSEMBLY
1	13 39 306	1	.Drawbar
2	13 39 309	1	.Drawbar housing c/w greaser
3	09 01 121	1	..Greaser 1/8" BSP
4	13 39 311	1	.Compensator
5	13 39 112	1	..Hexagonal swivel
6	13 39 308	1	.Handbrake lever
7	13 39 138	1	..Plastic grip
8	13 39 133	1	.Rear compensator pivot
9	13 39 136	1	.Pivot lower arm
10	13 39 131	1	.Inner link
11	13 39 127	1	.Plunger
12	13 39 123	1	.Plunger pin c/w split pin
13	05 03 083	1	..Split pin 1" x 1/8"
14	13 39 121	1	.Link pin c/w split pin
15	05 03 083	1	..Split pin
16	13 39 126	1	.Outer link
17	13 39 130	2	.Main arm pin c/w split pin
18	05 03 083	1	..Split pin 1" x 1/8"
19	13 39 122	1	.Cable support pin c/w split pin
20	05 03 083	1	..Split pin
21	13 39 120	1	.Cable support
22	13 39 115	1	.Compensator rod right hand
23	13 39 116	1	.Compensator rod left hand
24	13 39 114	1	.Compensator and cable rod
25	01 41 003	1	..Aeronut 3/8 UNF
26	01 00 203	1	..Spring washer 3/8"
27	60 01 064	1	.Tension spring
28	01 41 006	4	.Aeronut 5/8 UNF
29	03 11 101	2	.Setscrew ¼"UNF x 1¼" long
30	01 41 003	2	.Aeronut ¼" UNF
31	02 11 405	2	.Bolt ½" UNF x 5" long
32	01 11 005	4	.Plain nut ½" UNF
33	13 39 140	1	.4-ton hitch unit
34	13 39 137	1	.Cable c/w locknuts
35	01 31 003	2	..Locknuts

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